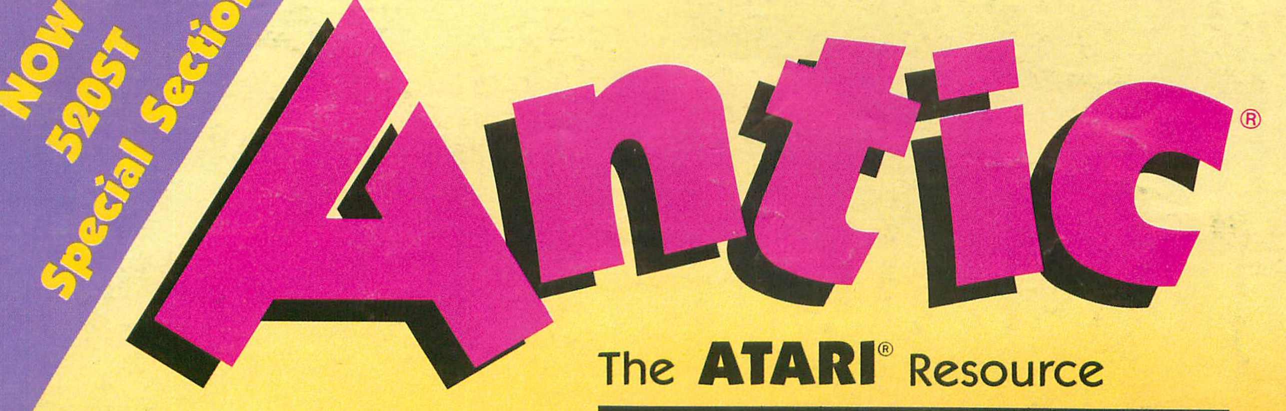



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AUGUST 1985 VOLUME 4, NUMBER 4

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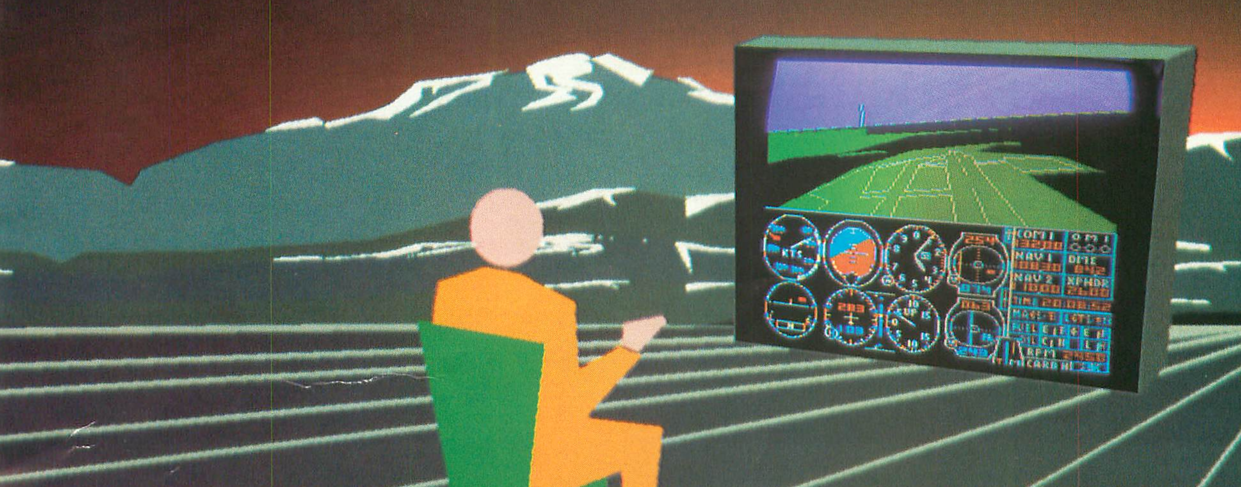
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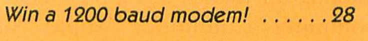
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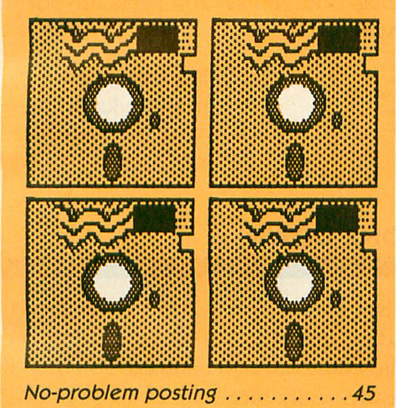
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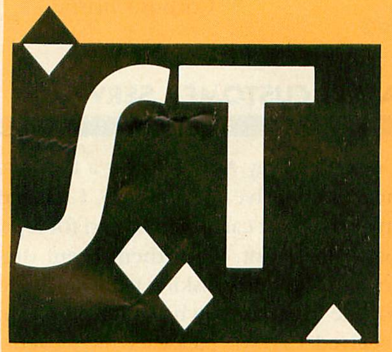
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# i/o board

## ATARI IN MOTION

With all the new Ataris coming out, and with all the new Atari owners, I thought you might want a small demonstration of the Atari's ability to produce awesome graphics. The demo below is a GTIA Mode 11 screen with rotating colors. It then goes into a fine scrolling routine (which is nothing more than some POKEs to memory location 560) then changes to the next GTIA Mode and starts all over again.

Jason Worley
Tulsa, OK

```
10 FOR NN=9 TO 11
20 GRAPHICS NN:X=1:Y=-1
:F=0:G=79:F1=191:G1=0:T
=191:T1=79:CNT=0
30 FOR R=F TO G STEP X:
C=C+1:IF C>15 THEN C=1
40 COLOR C:PLOT 39,95:D
RAWTO R,T:NEXT R
50 FOR R=F1 TO G1 STEP
Y:C=C+1:IF C>15 THEN C=
1
60 COLOR C:PLOT 39,95:D
RAWTO T1,R:NEXT R:IF CN
T THEN 80
70 X=-1:Y=1:F=79:G=0:F1
=0:G1=191:T=0:T1=0:CNT=
1:GOTO 30
80 FOR T=1 TO 4:FOR R=1
 TO 200 STEP 16:POKE 71
2,R:Y=1^1:NEXT R:NEXT T
:POKE 712,0
90 F=60:G=150:X=1
100 FOR R=F TO G STEP X
:POKE 560,R:FOR P=1 TO
10:NEXT P:NEXT R
110 F=150:G=60:X=-1:CNT
=CNT+1:IF CNT/2=INT(CNT
/2) THEN 100
120 IF CNT<7 THEN 90
130 NEXT NN:RUN
```

## DE RE ATARI

Like David Miller (I/O Board, March, '85), I also procrastinated too long in buying a copy of *De Re Atari*. But there's good news: American TV Sales and Service has the book for $12.50 plus $4 in shipping and handling. Their address is 15338 Inverness Street, San Leandro, CA 94597. Their phone is (415) 352-3787.

Darryl Howerton
Jonesboro, AR

## THE POLISH CONNECTION

We are new to the Atari user family and are the first Atari club in Poland, with 11 computers. All the hardware was individually imported, as we can't buy it in Poland. There is also a big problem in obtaining software and information. We are looking for friends to support us in our computer childhood. Would **Antic** readers help by sending us second-hand magazines, books and programs for the Atari?

Wieslaw Migut
ul.Budryka 9/216
30-072 Krakow
POLAND

## ONE DOWN . . .

I just wanted to let you know that I received my new Atari 130XE on April 9. They did come out as scheduled, and they are really, really nice!

L.N. Brandon III
Corpus Christi, TX

## ATARI CUSTOMER SERVICE?

I've owned my Atari 800 for a few years now. About five months ago, I returned my AtariArtist cartridge to Atari for repair or replacement. Since then, I sent them four or five letters asking what happened to the cartridge, which I still haven't received. Can you please tell me what happened to the Atari Corp.?

Drew Laszlo
Willowdale, ON

*We contacted Atari Customer Relations (408/745-2367) and spoke to Pat Stoy. She told us that a cartridge was sent several months ago, but that she would send another one immediately. She also indicated that customers can receive faster service if they include a dated invoice or other document indicating that a product is under warranty. It sounds to us as if Atari's Customer Service is back in business!*—ANTIC ED





### JUNE DISK MENU

Walt Bulawa's "Helicopter Roundup" game IS on Side B of the June, 1985 monthly disk and can be loaded by typing RUN "D:ROUNDUP.BAS from BASIC. However, you won't see it in the directory unless you change line 280 of the Side B MENU program to:

```
280 POSITION 36,(N/2)+5
:PRINT "|"
```

### AUTORUN SPECIALS

Some readers have been having trouble typing a pair of special character strings in "AUTORUN.SYS" (May, 1985).

The ATASCII codes for the string in line 150 are: **255, 255, 0, 6.**

The ATASCII codes for the string in line 270 are: **255, 255, 226, 2, 227, 2, 0, 6.**

### RUN TIME ACTION

In your May 1985 issue, you state that **Antic** disk subscribers will find a "run time" version of Amazing, the ACTION! game. The file does not have a .BAS extender and won't load from the menu.

Robert Gunsberg
Medford, NY

*AMAZE.EXE can be loaded using the L command from DOS 2, but not from DOS 3. However, our recent monthly disks have been so packed with programs that we haven't had room for the DUP.SYS file that enables you to do this. So you'll have to use another DOS 2 disk to get the DOS menu. See "Why You Want DOS 2", **Antic** April, 1985 for an explanation of DUP.SYS.*

*Also, each monthly disk contains a HELP file explaining how to load files with the different types of extenders such as .EXE, and lots of other useful information.*—ANTIC ED

### MUSICIAN ERASE

In Angelo Giambra's "Musician" (June, 1985), here's how to get your song to play instead of being erased when you press [P]. Change line 790 to:

```
790 IF A=54 THEN POSITI
ON 4,22:? #6;"song clea
red":GOTO 810
```

# ANTIC and DELPHI GIVE AWAY 30,000 HOURS ONLINE

Here's important news about online savings for **Antic** readers!

Now you can access the latest Atari news on ANTIC ONLINE and participate in SIG*Atari, the largest Atari users group, on TWO nationwide information utilities.

ANTIC ONLINE is now available on the *economical* **Delphi** service ($6 per hour for either 1200 baud or 300 baud) as well as on **CompuServe** ($7.75 hourly for 1200 baud, $6 for 300 baud).

Delphi ANTIC ONLINE will be a full database service—which means that on Delphi you'll be able to download certain selected **Antic** programs, and important Atari news can be updated daily instead of weekly.

And for the month of July only, Delphi has a money-saving offer especially for **Antic** readers.

### SUBSCRIBERS ONLY

If you are an **Antic** SUBSCRIBER, you can get a FREE lifetime subscription to Delphi and one FREE hour online —that's a $35.95 value at NO COST to you.

Just phone Delphi from your local **Tymnet** or **Uninet** number and follow these directions:

**Tymnet**—1200 baud: When you connect to Tymnet, you'll get a line of X's on your screen. As soon as this happens, type the letter A. When Tymnet asks you to "Please log in", type DELPHI [RETURN].

**Tymnet**—300 baud: After you connect to Tymnet, you'll be asked to type your "terminal identifier." Type the letter A. When Tymnet asks you to log in, type DELPHI [RETURN].

**Uninet**—(300 or 1200 baud): After you connect, type [RETURN] [.] [RETURN] to access Uninet. At the "service" prompt, type GVC [RETURN].

After you are connected to Delphi, give your User Name as ANTICSUB. And as your Password give the 18-character number at the top of your **Antic** subscription label.

### SUBSCRIBE & SAVE

You can also take advantage of this $35.95 savings by subscribing to **Antic** and Delphi *at the same time* online.When you phone Delphi from your local log-on number, answer the prompts with ANTICREF as your User Name and ONLINE as your Password. You'll get the FREE Delphi lifetime subscription plus the FREE hour online. And you'll be billed later for 12 issues of **Antic** Magazine at the low regular subscription price of only $28.

### SAVE $15 MORE

And any **Antic** reader can also take advantage of Delphi's bonus $15 savings offer. You get a $21.95 Delphi Handbook and Command Card plus Three Hours of online time worth $18—for only $24.95. Save $15 off the regular $39.95 cost.

Just follow the online prompts for this special bonus offer when you log onto Delphi with ANTICREF as your user name and ONLINE as your password.

# editorial

Being the primary source of information for Atari computer owners for over three years has brought **Antic** a lot of industry recognition recently. We're passing along the following pieces of information in order to share the credit with all of you in the community of Atari users. We did it together!

- A survey of computer magazine readers by the Yankee Group of Boston, one of the top computer marketing consultants, ranked **Antic** in sixth place among ALL computer magazines—not only the brand-specific magazines.
- The trade journal "Computer Publication Retailer" surveyed stores nationwide and listed their best-selling magazines. **Antic** was the ONLY Atari-specific magazine on this unranked list.
- **Antic** Action Edition is the best-selling magazine plus disk package in the big B. Dalton bookstore chain. **Antic** is also among Dalton's Top Three computer magazine sellers.

* * *

Frankly, we expected a pretty good response from readers when we printed our May editorial about Atari users being "Mad as hell and won't take it anymore" if software publishers don't release Atari versions of their hit programs.

That's because it was obviously an idea whose time had come, in the wake of all the new XLs sold last Christmas.

But we didn't expect so many readers to write **Antic** so soon and send us copies of their letters to the software company presidents.

And we're especially happy to report a major victory already. The reader whose letter was printed along with our May editorial is getting the software he wanted . . .

Broderbund president Dave Carlston returned from a trip to find a pile of **Antic** reader letters on his desk demanding an Atari version of **Championship Loderunner**—and **Antic** promptly got a call saying that Broderbund would make the conversion! We'll pass along more information as soon as it's available.

Dear Jim,

You and some of your readers were instrumental in helping Broderbund Software decide to publish an Atari version of **Championship Lode Runner**. Several readers wrote letters to Broderbund in response to **Antic's** May 1985 editorial. We will not only be developing **Championship Lode Runner** for the Atari, but also **Karateka**. Both games will be out this year in time for the holiday season.

Sincerely,

Cathy Carlston
Vice President
Broderbund Software

What other hit programs are **Antic** readers feeling left out on? Here is a sampling from the letters we have received so far:

Artie Stein of Fairfield, CA has written to Electronic Arts about **Sky Fox** and Epyx about **Impossible Mission**. He closed with this couplet, "I've got the bucks and I'm ready to buy / but all I can do is sit and cry."

Ronald A. Madia of Fairfield, NJ wants to know why Human Edge Software doesn't release its pioneering psychological program **Mind Prober** for the Atari.

Russell Casey of Lexington, KY has a substantial collection of Electronic Arts software and would like to add to it with **Adventure Construction Set**, **Mail Order Monster** and **Racing Destruction Set**. Hosea Battles, Jr. of Grand Forks, SD seconds the motion.

John Balling left us a message on ANTIC ONLINE saying that Sierra On-Line rudely turned him away when he phoned to see if there was any way his **HomeWord** word processor could be modified to address the full 128K memory of his brand new Atari 130XE.

Matthew Kasdorf of Manchester, NM wrote to Origin Systems about a problem he was having with his Exodus: Ultima III disk. He was appalled to get a return letter that left Atari off the list of computers due to get **Ultima IV: Quest of the Avatar**.

Scott Heinze of Jackson Heights is an Atari enthusiast and sysop (Battleship Atari 718-639-8569) who sent us a long list of unavailable titles including Activision's **Mindshadow**, **Music Studio**, **On-Court Tennis** and **On-Field Football**.

We were glad that Scott ended his letter with a list of software companies that have stood behind Atari owners. Some of the good guys include Avalon Hill, Batteries Included, Infocom, Microbits Peripheral Products, Microprose, Mindscape, Optimized Systems Software, Strategic Simulations Inc.

So keep those letters coming to the software company presidents, readers! Why not write to the good guy publishers too? Thank them for their Atari support, we know they'd appreciate it a lot! And don't forget to send **Antic** a copy of whatever you write. We'll be sure to keep you informed as more publishers add Atari titles.

Jim Capparell




# CHRIS CRAWFORD ONLINE for Worldwide Users Network

Chris Crawford, famed programmer of "Eastern Front" and "Excalibur," is teaching an eight-month course in assembly language for the Worldwide Users Network (WUN).

Starting in mid-June, a new assembly language lesson will be added each month to the Worldwide Users Network pages of ANTIC ONLINE on CompuServe.

The eight lessons are titled: Introduction to 6502 Assembly Language, Arithmetic, Logic, Branching, Index Registers, Subroutines, Interrupts, Advanced Topics. Crawford originally presented the lessons at the San Leandro Computer Club, one of the charter members of WUN.

## WUN SO FAR

**Antic** proudly presents this unique learning tool as our latest contribution to the growing number of WUN membership benefits.

The Worldwide Users Network started out with a two-inch announcement on the editorial page of the December, 1984 **Antic**. More details were added when ANTIC ONLINE got underway on CompuServe in January 1985.

From the very first, phone calls and letters from users groups all over the country came pouring in. There was obviously a vast hunger among Atari users groups to be able to speak with a united voice about matters of mutual concern.

ANTIC ONLINE has placed on the WUN pages a directory of over 130 users groups that signed up. We've also asked CompuServe to provide us with the capability to enable authorized users group representatives to upload information about coming meetings.

## INSTANT ATARI NEWS

Meanwhile, **Antic's** online presence and the WUN umbrella has allowed us to provide users group newsletters with the latest news of Atari developments—news that is often uploaded within hours after it happens.

We have been providing this fast, professional Atari news coverage online since our sneak preview of the new ST and XE computers just prior to the January 1985 Consumer Electronics Show.

WUN representatives from all over the country came to the **Antic** Third Birthday Party on March 30 and met in person with Atari president Sam Tramiel and other top executives of the company.

Our conception of the Worldwide Users Network has been evolving and is still continuing to evolve. We are in the process of putting together an independent WUN Board of Directors to reflect the goals and wishes of the widest spectrum of Atari users.

## DRI ON BOARD

Rob LaTulipe, ST GEM software development manager at Digital Research, Inc. has already agreed to serve on the board. Users group delegates representing the different areas of the country will also be seated on the WUN board of directors.

As new products are released for the powerful 130XE and 520ST, we believe that the manufacturers will increasingly be asking **Antic** to pass along beta testing samples to WUN member groups.

We are currently exploring a variety of exciting possibilities for providing additional benefits to WUN members. Probably the biggest thing we are considering is the possibility of putting together a WUN Atari Convention in the San Francisco-Silicon Valley area in about six months. This would be an Atari fair that also set aside time for WUN election and planning meetings.

## HELP US DECIDE

Clearly the convention idea is still a trial balloon. It would require a significant commitment of **Antic's** energy if we go ahead with the project. Help us decide if it can be done. Send us a letter, or electronic mail via ANTIC ONLINE.

Tell us what time of year you would be most likely to attend a convention in Northern California. What speakers and panels would you prefer? How many members of your users group do you think would travel to the convention? And would you be willing to help out at the convention as a volunteer?

# ATTENTION!

## SUBSCRIBERS WHO WANT TO CONVERT TO A DISK SUBSCRIPTION

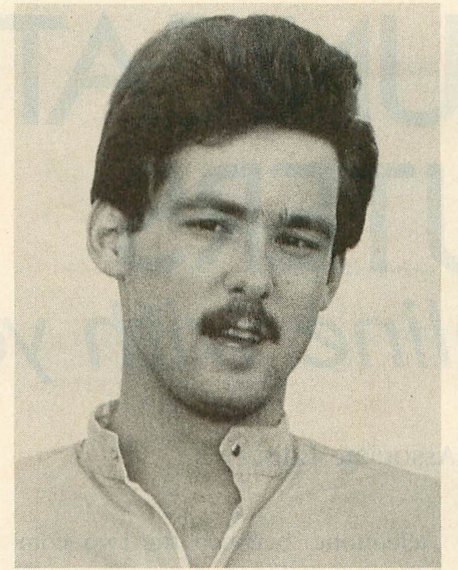
### Follow these steps:

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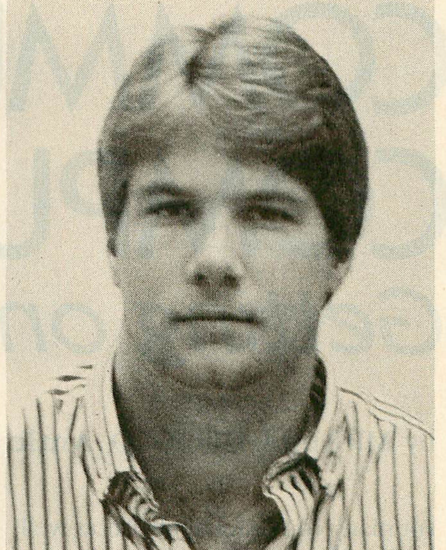
**2.** Tape or staple the label to the disk subscription form, "THE ACTION EDITION," in the magazine.

**3.** Mail in the new form.

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ALAN ACKERMAN



JOHN WILEY

# THE MICROBITS STORY

## *$5 million company run by 22-year-olds*

by NAT FRIEDLAND, **Antic** Editor

Look out of the windows of the most successful independent manufacturer of modems, printer interfaces and memory buffers that plug directly into the Atari—what you see is cows grazing on green hillsides.

Microbits Peripheral Products of Albany, Oregon (Pop. 40,000 and about 50 miles south of Portland) has always done things a bit differently. The $5 million a year company with 35 employees is a pretty good argument for dropping out of college.

That's what the co-owners of MPP did during their freshman year in electrical engineering at Oregon State U. However, Alan Ackerman and John Wiley—now 22—had been Atari retailers in their Willamette Valley hometown since they were 16, so they had a pretty good idea where they were headed and how to get there.

### BICYCLE ATARI

The pair got started by buying floppy disks in boxes of 100 and reselling them profitably one at a time to their fellow high school students. The actual Microbits company began life as an Atari store in a corner of a bicycle shop owned by Wiley's uncle.

By the time Ackerman and Wiley had graduated, they were the winning bidders for supplying the school district's first computers and they also set up two school computer fairs.

When they decided to quit college and start their own high-tech manufacturing company, they had a retailers-eye view of what the market really wanted.

The first MPP product demonstrated what the company has consistently succeeded in doing—fill an unmet need in the marketplace and do it at a price below the competition.

They designed a modem for the Atari that could upload and download, didn't require the hard-to-find Atari 850 interface and originally cost $199. That product developed into today's $119.95 MPP-1000E and is still the company's biggest seller.

Next came a series of printer interfaces and buffers that make it more affordable than ever to hook up your Atari with any Centronics parallel printer—the $69.95 MicroPrint interface, the $89.95 MPP-1150 interface with 2K buffer, and the 64K MicroStuffer printer buffer for $149.95. The MicroRam $79.95 plug-in memory expander gives the 600XL a 64K memory that equals the 800XL.

### COMING SOON

There's a lot of excitement about the coming generation of MPP products,

continued on page 18

# COMMUNICATING COMPUTERS

## Getting online with your Atari

by MICHAEL CIRAOLO, **Antic** Associate Editor

For many computer hobbyists as well as businessmen and professionals, the greatest value of a computer is its ability to connect with other computers —mainframes or microcomputers— around the country.

This connection is called telecommunications, or sometimes telecomputing. It lets you meet other people with similar interests, bank and shop electronically, obtain programs and information over the phone, and much more.

The heart of communications between computers is a modem (shortened from MOdulator/DEModulator). A modem converts (modulates) data from your Atari into a signal suitable for transmitting over a telephone line. It also converts back (demodulates) the transmitted signal into data understandable by another computer.

To link up, each computer needs a modem. You also need to connect your modem and computer, and establish a connection (usually via telephone) between the two computers (See *Figure 1*).

### RS-232 HOOKUP

The data communicated is nothing more than a series of electrical impulses sent between two computers, and a standard has been created to insure the compatibility of those signals.

That standard is called RS-232C, established by the Electrical Industry Association. It defines voltage and resistance for signals between computers.

From the standard, we get the design specifications for the RS-232 port, an outlet found on many computers, and for the RS-232 cable, used to connect modem and computer.

Some computers, such as the new Atari ST series, have an RS-232 port built in. Other personal computers—including all other Ataris—do not include an RS-232 port.

There are two ways around this. You can buy one of the few modems that plug directly into your Atari, or use the Atari 850 interface which provides an RS-232 port. (Both of these alternatives are covered more fully in an adjoining story.)

### MODEM MAPPING

There are a number of widely used terms that describe the different ways that modems do their jobs:

**Direct-connect** or **acoustic:** Early modems, and even some that are still being made, were primarily acoustic modems. These have large rubber cups into which the phone handset is fitted. Unusual shapes such as Mickey Mouse phones won't work here. New phones and the latest modems can be connected directly to one another. These direct-connect modems plug into the phone line's modular plug.

**Baud:** How fast information is transferred, in bits per second, also abbreviated as bps. The modems at

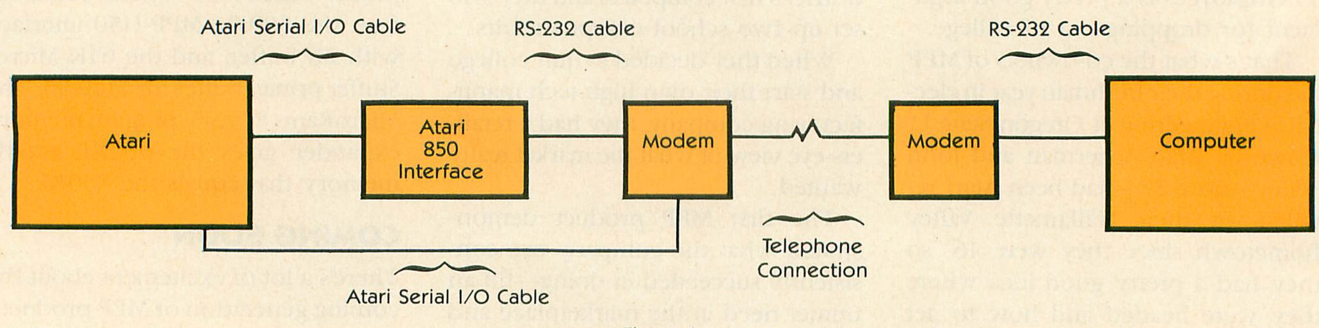



Figure 1

each end must operate at the same rate in order to communicate. Today's commonly used rates are 300 bps and 1200 bps. Just starting to appear on the consumer market are 2400 bps modems.

**Duplex:** Can information be sent and received from both computers simultaneously? If so, it is full duplex, like a telephone conversation. If both computers can send and receive, but not simultaneously—like CB radio—the connection is half duplex.

**Auto-answer:** An auto-answer modem can automatically answer the telephone, when properly connected to the computer.

**Auto-originate** or **auto-dial:** This means a modem is capable of dialing another computer, from keyboard commands.

**Smart modems:** Modems that are capable of autodial, autoanswer, automatically disconnecting if there is no carrier tone, and so on, are said to be "smart."

The capability of a modem is described by a set of standards separate from the RS-232C standard, which were pioneered by Bell Systems. The Bell 103 standard means the modem works at 300 baud with full duplex. Bell 202 represents 0 to 1200 baud with half duplex. Bell 212 is full duplex, 0-1200 baud.

After a modem is connected to your computer, you need the proper software to operate the entire system.

## TERMINAL SOFTWARE

Telecommunications software, also called terminal software, lets you send and receive files and programs over the phone, store these files to disk or cassette, print out files and so on.

Just as there is a convention regulating the nature of the electrical impulses sent between computers, there are standards, called protocols, governing the format of information exchange.

The Christensen (XMODEM) protocol, for example, is a common protocol used to transfer files from one computer to another. The receiving computer sends a certain signal every few seconds until the sending computer responds with an acknowledgement. This synchronizes the two computers, and is immediately followed by the file.

Terminal software also checks transmitted files for accuracy, because interference on telephone lines can destroy data in transit. This is called corruption.

To guard against data corruption, modems and modem software use several forms of error detection, called parity checking, checksum, and redundancy checking. These compute values for each batch of data sent, and send that value back to the transmitting computer. If the values don't match, the data is sent again.

## CABLING COMPUTERS

You can use telecommunication techniques *without a telephone* to transfer text files between different makes of computers. For instance, you can upload text files from a portable computer like the Radio Shack M-100 to your Atari. Or you can transfer a simple Logo program from your older Atari to the new Atari ST.

In general, transferring files requires an RS-232 cable to connect the two computers in lieu of a telephone connection, an Atari 850 interface, and a null modem cable or adaptor.

A null modem cable simulates the connection between computers created by modems. It lets you connect RS-232 ports directly (*Figure 2*).

The null modem cable takes the send signal from one computer and routes it to the receive channel of another and vice versa. These adaptors are available from Radio Shack for $29.95.

The cheapest and most instructive way of obtaining a null modem cable, however, is to make your own. You'll find a more detailed instructions in the July, 1984 issue of **Antic**, page 45.

## GOING ONLINE

Once you've dressed up your Atari for telecommunications, you need numbers to phone. Elsewhere in this issue you'll find a story describing some of the best places to begin calling.

Also, listed below are some good reference books to get you started. Now, with your Atari and a modem, the world is yours. Just be careful not to run up humongous phone bills!

continued on page 16

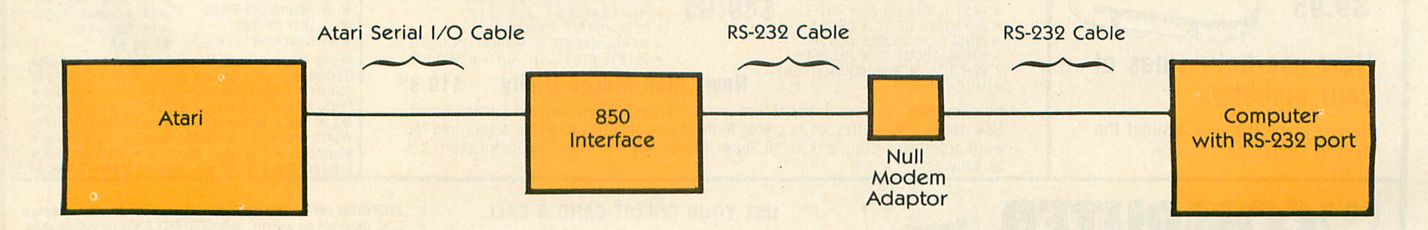


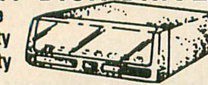

Figure 2



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| Defender | 17.95 | C |
| Ulysses | 19.95 | D |
| Tennis | 13.95 | C |
| Ultima II | 52.50 | D |
| Ultima III | 39.95 | D |
| Bounty Bob | 44.90 | C |
| Strip Poker | 31.50 | D |
| Bridge 4 0 | 22.50 | D |
| Spy vs Spy | 26.90 | D |
| Castle Wolfenst | 26.90 | D |
| Poker Sam | 22.50 | D, T |
| Bristles | 26.90 | D, T |
| Cutthroats | 31.50 | D |
| Enchanter | 31.50 | D |
| ML Baseball | 35.10 | D |
| Chess 7 0 | 59.50 | D |
| Checkers | 44.90 | D |
| Pitstop II | 35.10 | D |
| Computer Ambu | 52.50 | D |
| Broadsides | 35.10 | D |
| Kampfgruppe | 52.50 | D |
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| Ali Baba | 26.90 | D |
| Return Hercules | 28.90 | D |
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| Voodoo Castle | 17.90 | T |
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| Zombies | 31.50 | D, T |
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| Conan | 35.10 | D |
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| Epson FX80 | 395.00 |
| Epson LQ1500 | 999.00 |
| Super-5 | 249.95 |
| Prowriter 8510SP | 399. |
| Prowriter 1550 | 439. |
| Atari 1025 | 239.95 |
| Atari 1027 | 199.95 |

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| Tech.Users Notes | 26.90 |
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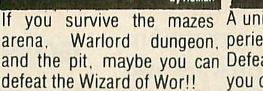



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| Synstock | 35.10 |
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| Mac/65 | 87.90 |
| Action | 87.90 |
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| Writer's Tool | 87.90 |
| Tele-Talk | 44.90 |
| Financial Cookbk | 34.90 |
| Basic Cartridge | 29.90 |
| Graphic Gener | 22.50 |
| Microsft Basic 2 | 55.00 |

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| 800 Power Supply | 24.95 |
| 10 Disk Mailers | 6.50 |
| 10 Generic Disks | 13.95 |
| Ten Key Pad | 39.95 |
| Touch Tablet | 54.95 |
| Compu-Serve | 39.95 |
| Indus Dr Stacker | 19.95 |
| Oak Monitor Std | 29.95 |
| Printer Stand | 24.95 |
| Disk Bank(50) | 15.95 |
| Disk Bank(35) | 9.95 |
| Regular Joystick | 9.30 |
| Deluxe Joystick | 19.95 |
| Swivel Base | 39.95 |
| Joystick Cord | 2.95 |
| Joystick Handle | 1.49 |
| Joystick Board | 2.49 |
| J stick 12' Ext | 9.95 |
| Surge Protector | 39.95 |
| Printer Intrface | 49.95 |
| 64K for 600XL | 79.95 |
| Relax | 99.95 |
| Sherlock | 26.90 |

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| Krazy Shoot-out | 17.95C |
| Pacific Cst Hwy | 9.95D |
| Crossfire(T - ) | 9.95 |
| Match Racer | 9.95D |
| Bandits | 9.95D |
| Jawbreaker | 9.95D |
| Eastern Front | 9.95T |
| Canyon Climb(T - D) | 9.95 |
| Pool 400 | 14.95C |
| Speedway Blast | 14.95C |
| Repton | 9.95D |
| Wayout | 9.95D |
| Cosmic Tunnels | 9.95D |
| Stellar Shuttle | 9.95T |
| Pathfinder | 9.95D |
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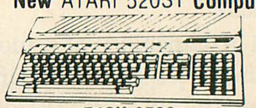
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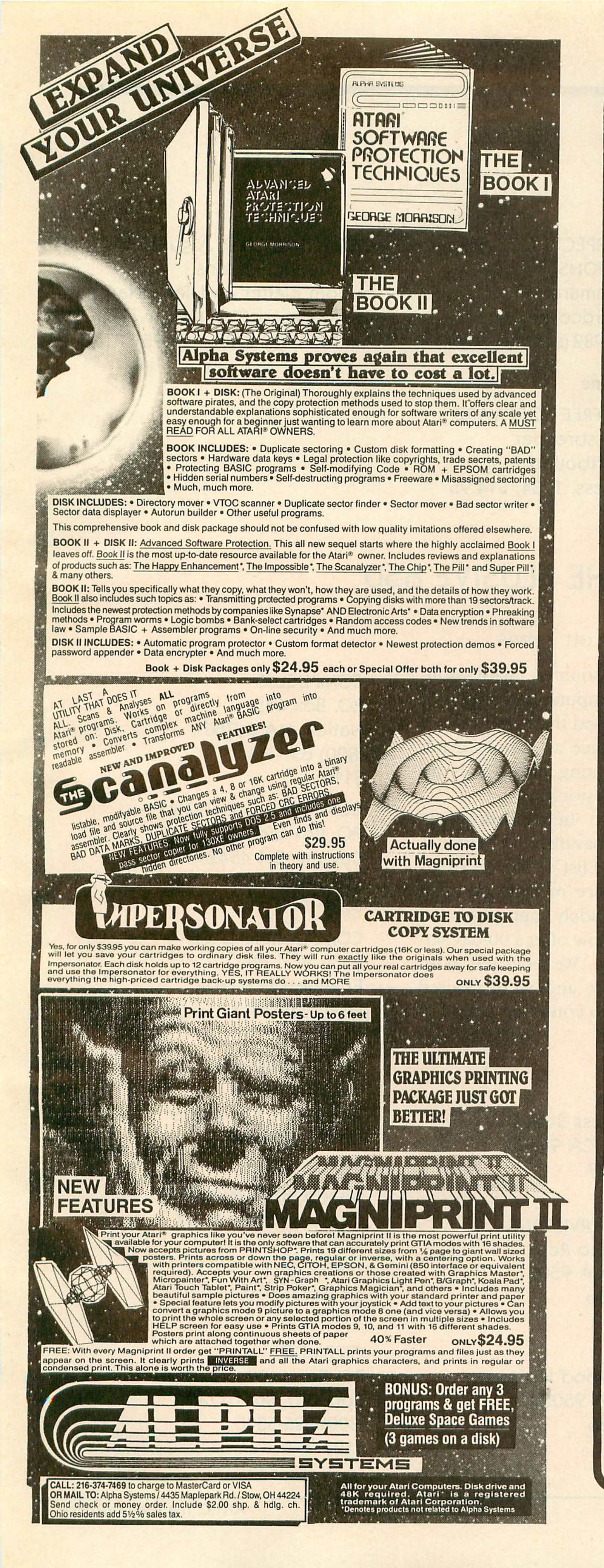
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Print your Atari® graphics like you've never seen before! Magniprint II is the most powerful print utility available for your computer! It is the only software that can accurately print GTIA modes with 16 shades. Now accepts pictures from PRINTSHOP*. Prints 19 different sizes from 1/8 page to giant wall sized posters. Prints across or down the page, regular or inverse, with a centering option. Works with printers compatible with NEC, CITOH, EPSON, & Gemini (850 interface or equivalent required). Accepts your own graphics creations or those created with Graphics Master*, Micropainter*, Fun With Art*, SYN-Graph *, Atari Graphics Light Pen*, B/Graph*, Koala Pad*, Atari Touch Tablet*, Paint*, Strip Poker*, Graphics Magician*, and others • Includes many beautiful sample pictures • Does amazing graphics with your standard printer and paper • Special feature lets you modify pictures with your joystick • Add text to your pictures • Can convert a graphics mode 9 picture to a graphics mode 8 one (and vice versa) • Allows you to print the whole screen or any selected portion of the screen in multiple sizes • Includes HELP screen for easy use • Prints GTIA modes 9, 10, and 11 with 16 different shades. Posters print along continuous sheets of paper which are attached together when done.
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**STARTING OUT**
continued from page 13

## SUGGESTED READING

**For the hook-up**

DATA COMMUNICATIONS FOR MICROCOMPUTERS
by Elizabeth Nichols, Joseph Nicols and Keith Musson
204 pages, softbound
McGraw Hill, 1982, $16.95

TECHNICAL ASPECTS OF DATA COMMUNICATIONS
by John McNamara
330 pages, hardcover
Digital Press, 1982 (second edition)

**For going online**

HOW TO GET FREE SOFTWARE
by Alfred Glossbrenner
436 pages, softbound
St. Martin's Press, 1984, $14.95

GET CONNECTED, A guide to telecommunicatons
by Tom Kieffer and Terry Hansen
424 pages, softbound
Ashton-Tate, 1984, $24.95

# STALKING THE ELUSIVE 850

by Scott Lewis

The Atari 850 Interface Module is a small but versatile box sold separately from your computer. It connects to Atari computers with a standard serial I/O cable.

The 850 interface converts data from the computer into formats compatible with the RS-232 serial standard which is used by most modems, and also for the Centronics parallel standard which is used by most printers.

If you do not have an 850 you are restricted to using those few modems that plug directly into a port on the Atari computer—the Atari 1030 ($79.95 from Antic Arcade catalog) or the MPP-1000C ($149.95, Microbits Peripheral Products).

For printer compatibility, without an 850 you must either use an Atari-made printer or purchase a parallel printer interface such as the MicroPrint ($69.95, Microbits). For a full list of printer interface cables available, see page 33 of the March, 1985 **Antic**.

It usually is not easy to find an 850 at your local computer store, even though Atari has told **Antic** that it still has plenty of units available in their warehouses. According to one of our Atari sources, many non-specialized computer outlets do not really understand the many uses of the 850 interface as a tool for advanced computing and so they do not keep it in stock.

In order to help readers get around this unavailability, **Antic** is printing here a list of dealers offering the interface module by mail. Prices vary widely, but all of the firms listed below offer a 90-day service warranty. We checked with each company, and were assured that they have a continual supply of 850s available.

**DEALERS**

AMERICAN TV
15338 Inverness Street
San Leandro, CA 94579
(415) 352-3787
$135

B&C COMPUTERVISIONS
3400 El Camino Real
Santa Clara, CA 95051
(408) 554-0666
$160

COMPUCAT
24500 Glenwood Highway
Los Gatos, CA 95030
(408) 353-1836
$117.31

COMPUCLUB
P.O. Box 652
Natick, MA 01760
(800) 631-3111
$112

COMPUTER CREATIONS
P.O. Box 292467
Dayton, OH 45429
(800) 824-7506
$109

COMPUTER PALACE
2160 W. 11th
Eugene, OR 97402
(800) 452-8013
$139.50

ELECTRONIC ONE
P.O. Box 13428
Columbus, OH 43213
(614) 864-9994
$87

SAN JOSE COMPUTER
1844 Almaden Road
Unit E
San Jose, CA 95125
(408) 723-2025
$149

GIZZMOZ
P.O. Box 1402
Concord, MA 01742
(800) 225-5800
$109.95

# GETTING CONNECTED

DOW JONES SERVICE
P.O. Box 300
Princeton, NJ 08540
(609) 452-1511
(800) 257-5114

The granddaddy of all online services started as a stock quotation wire during trading hours. Your need for such information cannot be better satisfied, even though a number of other services now include stock quotes.

Dow Jones (DJ) owns the "Wall Street Journal" and "Barrons," offering them electronically, along with up-to-the-minute financial news. Profiles of 10,000 companies are also on file. Dow Jones rates are $72 per hour during the day and $12 per hour at night.

PLATO
Control Data Publishing Co.
P.O. Box 261127
San Diego, CA 92126
(800) 233-3784
(800) 233-3785 (in California)

Years ago, CDC and the University of Illinois collaborated to develop a computerized system for presenting and managing educational material. The result is **PLATO**, containing over 200,000 hours of structured "lessons" on most topics imaginable. Until recently, PLATO was restricted for technical reasons to expensive terminals, but the long-promised $50 cartridge from Atari now promises to make PLATO available to you for only $5 per evening hour.

THE SOURCE
1616 Anderson Road
McLean, VA 22102
(703) 734-7540
(800) 336-3330

**The Source** attempts to provide a more refined general information service than those offered by other non-specialized databases, but it doesn't quite achieve the quality of specialists like Dow Jones and Dialog. The service's $100 registration charge is stiff (but it is often discounted). Access rates are generally high—$7.75 per hour for evenings and weekends—and there's also a $10 miminum charge per month. Its services and information are similar to CompuServe's, but you should compare the two before signing up with either system.

BRS AFTER DARK
3 Blackstone Street
Cambridge, MA 02139
(617) 491-3393
(800) 833-4707

Powerful professional databases such as **BRS After Dark** are available at a fraction of their normal cost when accessed after business hours. BRS, for Bibliographic Retrieval Service, is a medical, technical and scientific service during the day. It also offers data on a number of scientific and technical fields. You pay $50 up front, plus fees from $6 to $15 per hour, depending on which of the service's 25 databases you use. The minimum charge is $12 a month.

COMPUSERVE
5000 Arlington Center
Box 20212
Columbus, OH 43220
(614) 457-8600
(800) 848-8199

First home of the ANTIC ONLINE electronic edition and SIG*Atari, **CompuServe** dominates the home market for online services. Comparatively inexpensive to join and use, CompuServe offers a wide variety of services including programming, storage, bulletin boards, shopping, electronic mail, airline reservations, and real-time communications as well as raw information. Its main news source is the Associated Press.

Sign-up details are available at most computer stores. Night rates are $6 per hour for 300 baud and $7.75 for 1200 baud. There are surcharges for some premium services. The $40 entry fee is often reduced or waived as the result of various promotions.

DIALOG
3460 Hillview Avenue
Palo Alto, CA 94304
(415) 858-3785
(800) 227-1927

Space research gave rise to the Lockheed subsidiary **Dialog**. During working hours, its 200-plus databases serve more than half a million users at prices we needn't describe. At night, the service's most popular databases are available through a service called **Knowledge Index**, which specializes in medicine, psychology and business. This service costs $24/hour. There is no minimum charge, but you must buy a $35 instruction manual (consider it a fee for the two free hours you're given to learn the system). Hardcopy printouts of desired material are reasonably priced.

DELPHI
3 Blackstone Street
Cambridge, MA 02139
(617) 491-3393
(800) 544-4005

**Delphi** is undergoing great changes. Not only is SIG*ATARI going to be duplicating its files on Delphi, but

continued on next page

so is ANTIC ONLINE. Delphi offers news, electronic mail and searchable databases, but specializes in user-created files, which may be either public or private.

You can write, edit and store files while connected to the system, or upload material created offline. You can keep your calendar up to date, contribute to collaborative novels, publish a newsletter, register your opinions, seek expert advice, or confer in real time with other users. Life-time registration is regularly $50, which includes two free evening hours. Rates are $16 during the day, and $6 in the evenings for either 300 or 1200 baud. There is no monthly minimum.

BOISE USERS GROUP (BUG)
1030 El Pelar Drive
Boise, ID 83702
(208) 383-9547

One of the most useful bulletin board services for Atarians, **BUG** offers a downloadable list of over 400 other Atari bulletin board numbers. These numbers are listed by state. And they are verified biweekly to ensure accuracy. This is probably the best source of information on Atari bulletin boards for your area.

ATARI USERS GROUP BBS
1196 Borregas Ave.
Sunnyvale, CA 94086
(408) 745-5308

Operated by Atari Corp., this BBS is just getting started. It will provide some general information and a national listing of users groups. We are told that more is planned for the future.

**THE MPP STORY**
continued from page 11

many of them due out before the end of the summer.

First in line will be MPP's plug-in 1200 baud modem—four times as fast as the current 1000C and 90% Hayes-compatible. This MPP-1200A will be the first 1200 baud modem an Atari can use without the 850 interface.

Wiley and Ackerman say that the engineering of the MPP-1200A is virtually completed and the modems will hit the market as soon as adequate supplies of the advanced new telecommunications chips they're using become available.

MPP also demonstrated a prototype of their impressive new 10-megabyte $800 hard disk at the **Antic** Third Birthday Party.

And they are well underway with the ambitious Omega telecommunications software that will feature icons, pull-down menu windows, joystick or mouse control and be available for both the XL/XE and ST Atari lines.

As a side effect of this project, MPP has discovered that the ST mouse driver is programmed very similarly to the standard Atari joystick. And now they plan to market mouse-driven software for all 8-bit Atari computers. The actual mouse driver program will be put into public domain and you can expect to see it first in **Antic**.

But there's still more. MPP is preparing a low-cost Resource Sharing System that will enable as many as eight Ataris to share printers and disk drives. This product will be especially useful to educators who want to hook up a lot of Ataris in a classroom.

## IDEA ROYALTIES

Microbits credits a significant part of its success to a substantial presence at the Consumer Electronics Shows, and at the West Coast Computer Faire where they regularly sell items from their line at substantial savings.

Another ingredient of the company's success is its innovative program of users group support. Directed by Kirt Stockwell, this program offers solid product information backup as well as strong savings on group purchases.

MPP currently does most of its own product assembly in their 12,000-foot-square facility in an industrial park at the edge of Albany. However, many of the actual boards are put together at outside subassembly contractor companies.

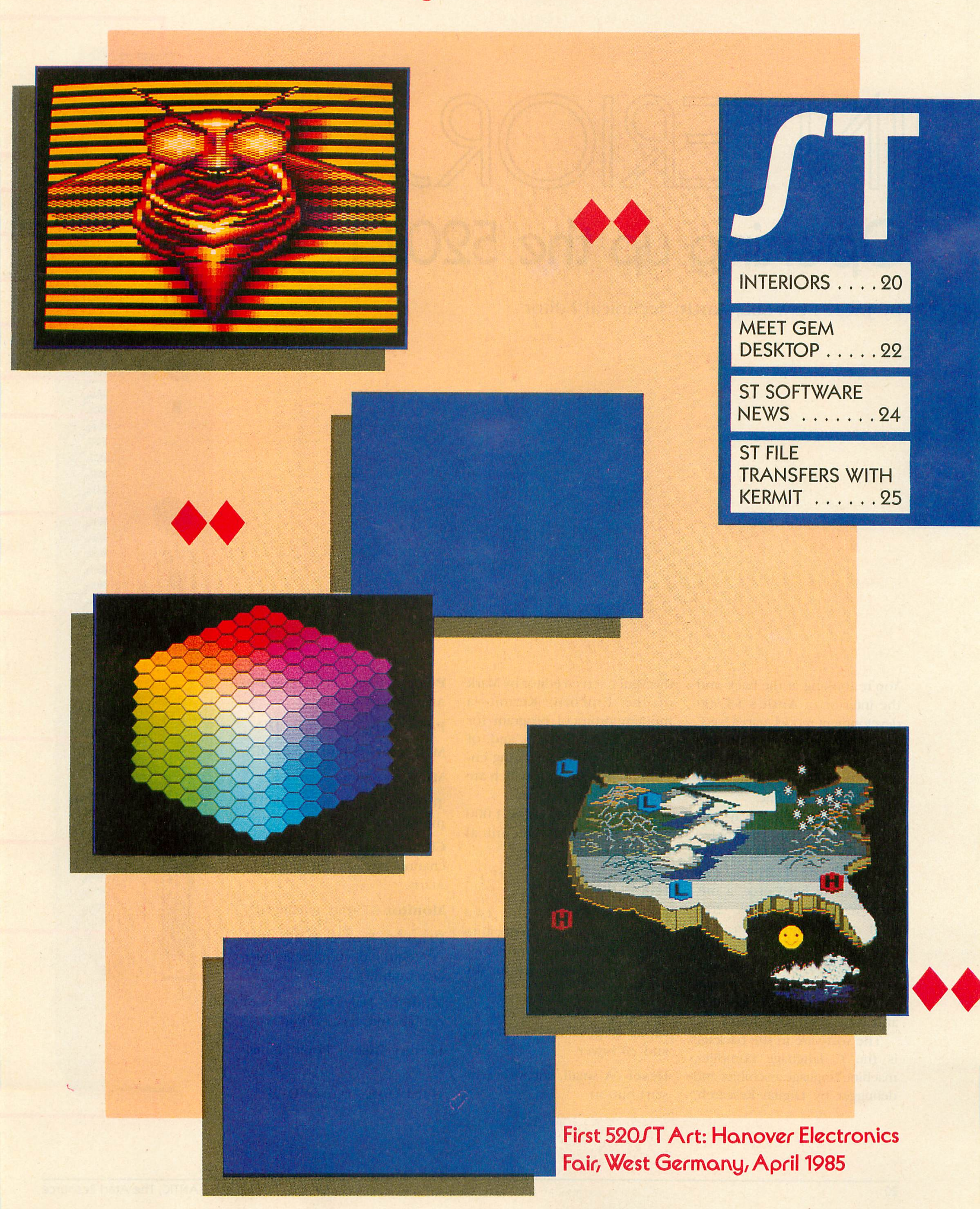
Ackerman, the president of MPP, heads the 8-person research & development team. Wiley, with the title of vice president, oversees most of the other corporate operations.

Ackerman and Wiley were insistent about the final point they wanted to leave with **Antic** readers. "We're always looking for the best ideas in computer peripheral gizmos and we pay royalties to outside developers," they said. "We'll listen and pay for good ideas that aren't even fully technically developed yet."

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# New: Monthly Antic ST Section

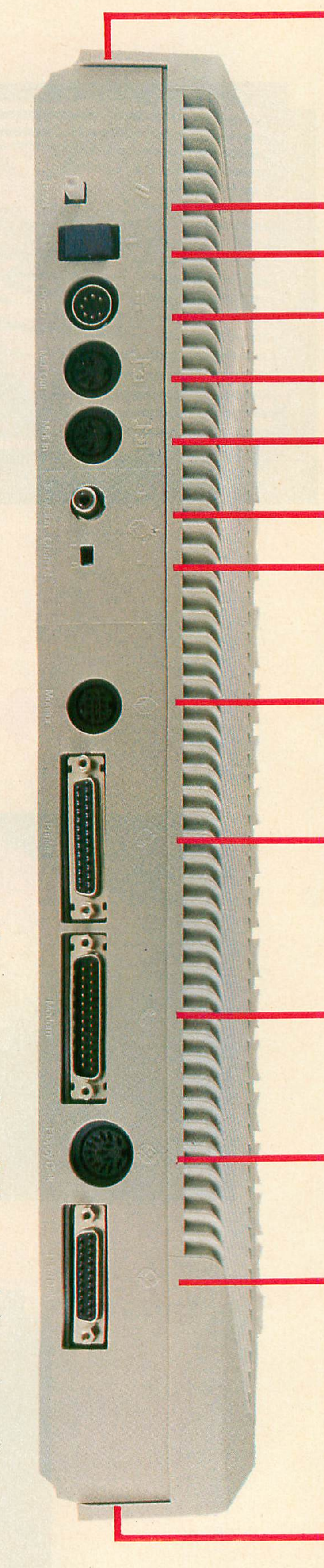



First 520ST Art: Hanover Electronics Fair, West Germany, April 1985

# INTERIORS

## Opening up the 520ST

by JACK POWELL, **Antic** Technical Editor



You're looking at the back and the interior of **Antic's** $5,500 development model Atari 520ST. The machine you get off the shelves may look a little different, but the basic architecture will remain the same.

The $5,500, by the way, was not just for the hand-assembled computer. It also bought **Antic** two 3.5" disk drives, one 10-megabyte hard disk, a medium-resolution (640 × 200) RGB analog monitor, a high resolution (640 × 400) monochrome monitor, and one mouse. (Actually, we're still holding IOU's for the hard disk and the high-res monitor.)

The software in the package is the C language compiler, machine language assembler and debugger by Digital Research, the Mince screen editor by Mark of the Unicorn, Kermit—a modem protocol program for file transfer, GEMDOS, and, of course, the GEM operating environment— both of which are in ROM in our machine.

With all of this came 1,000 pages of highly technical documentation.

### THE PORTS

**Joystick Ports**—The two joystick ports look identical to current Atari joystick ports, except they are also used for the mouse.

**Cartridge Slot**—This will accept a 40-pin board—20 upper and 20 lower.

**Reset**—A small, square warmstart button.

**Power**—Identical to previous Atari power switches.

**Power In**—7-pin, male DIN.

**MIDI Out**—5-pin, female DIN.

**MIDI In**—Same as above.

**Television**—RCA, female. RF modulator is built-in.

**Channel**—Mini-switch, same as channel switch on the 8-bit Ataris.

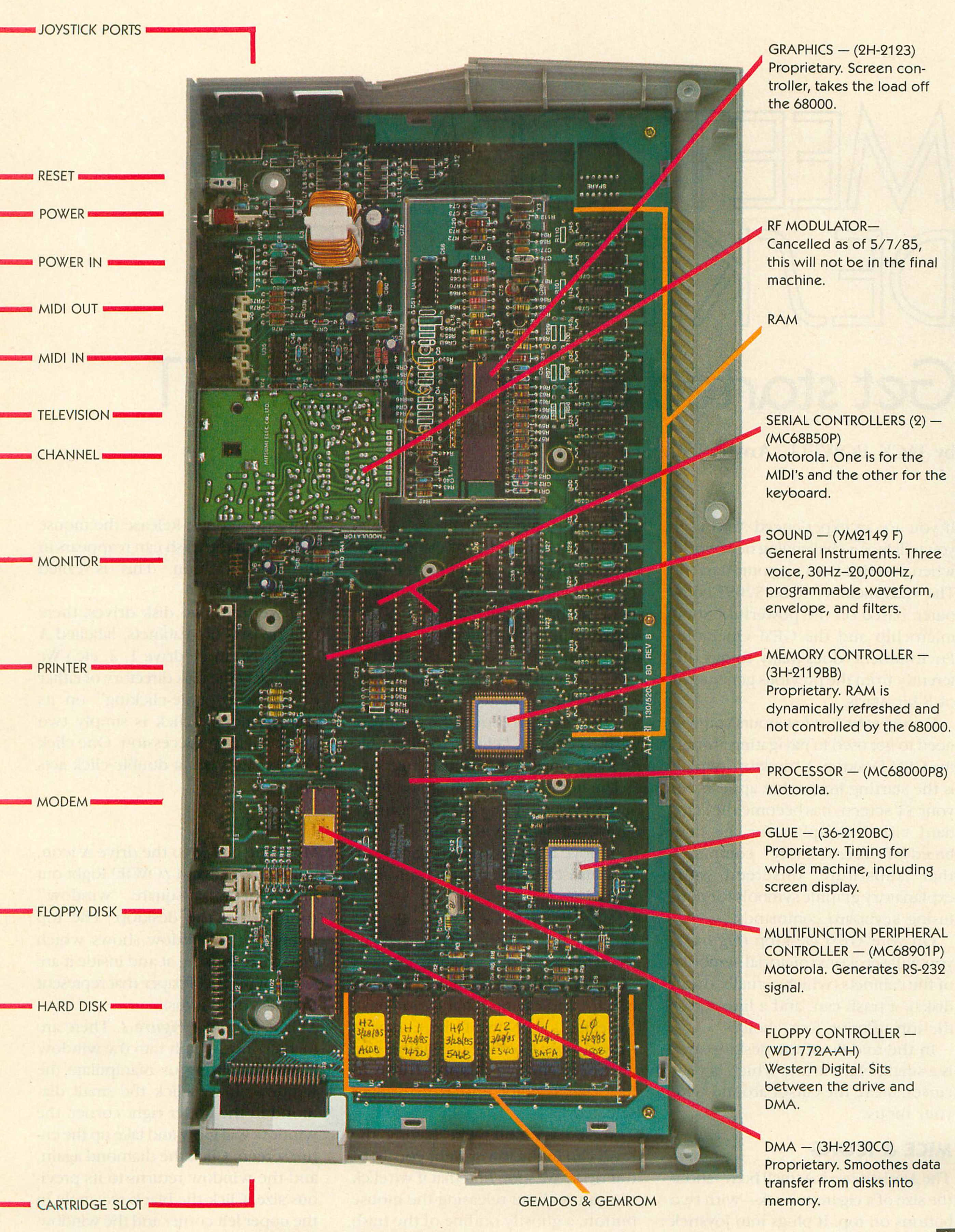
**Monitor**—13-pin, female DIN.

**Printer**—Female D-25, IBM-PC/Centronics compatible. Interface built-in.

**Modem**—Male D-25, IBM compatible. Interface built-in.

**Floppy Disk**— 14-pin, female DIN.

**Hard Disk**—Female D-19.




*Photography Linda Tapscott*

# MEET GEM DESKTOP

## Get started operating your ST

by JACK POWELL, **Antic** Technical Editor

If you are an experienced Atari user you will face a challenging new world when you first boot up your Atari ST. The 512K memory 16-bit 520ST computer, based on the powerful 68000 microchip and the GEM Operating Environment, does many things differently from the previous generation of 8-bit Ataris.

During your first few hours you will need to get used to navigating around the GEM Desktop. A "desktop", which is the starting image that appears on your ST screen, has become the standard visual metaphor for the new breed of "user-friendly" computers that substitute onscreen self-explanatory graphic symbols for confusing keyboard commands.

On your GEM Desktop (*Figure 1*) you will see icons (pictorial symbols) of file cabinets (which actually mean disks), a trash can, and a line across the top offering four choices.

In the middle of the desktop area is a small, black arrow which is your cursor. Move the cursor around with your mouse.

### MICE & ICONS

The Atari mouse is a small box—about the size of a cigarette pack—with two buttons on top. It plugs into joystick port 1 and you can think of it as a sort of upside-down trackball.

When you roll the mouse around your *real* desktop, a ball on the bottom of the mouse signals your movements to the computer and causes the screen cursor to match the mouse movements.

As you will find, this is a very fast way to choose items on the screen. When the cursor is over the item you wish to choose, "click" the item by pressing one of the mouse buttons.

The items can be highlighted text, or icon visuals. It doesn't take long to figure out what will happen when you move a file icon to the trashcan icon and click the mouse button.

### DRAGGING

Let's use the mouse to move the cursor over the file cabinet labelled FLOPPY DISK A and click it. It turns black, indicating that you have "selected" it. Now if the cursor is moved away from the file cabinet and clicked again, the cabinet returns to its original color and is no longer selected.

Maybe we don't like having the trash can in the lower right corner of our desk. We soon find that if we click the can without releasing the mouse button, a ghostly outline of the trash can icon stays with the cursor as we move the mouse. Release the mouse button and the trash can reappears in the new location. This is called "dragging."

If we have two disk drives, there will be two file cabinets, labelled A and B. (No more drive 1, 2, etc.) We can look at the disk directory of either drives by "double-clicking" on its icon. A double-click is simply two quick clicks in succession. One click chooses an item, a double-click acts upon it.

### WINDOWS

Move the cursor to the drive A icon, double-click it and ZOWIE! Right out of the icon, a square "window" zooms onto the desktop. The top frame of the window shows which disk we're looking at and inside it are icons of pieces of paper that represent the files on the disk.

Take a look at *Figure 1.* There are many controls built into the window frame for letting us manipulate the window. If we click the small diamond in the upper right corner, the window will grow and take up the entire screen. Click the diamond again, and the window returns to its previous size. Click the black rectangle in the upper left corner and the window will "close" and appear to vanish back

into the file cabinet.

We can drag this window, just as we dragged the trash icon, by clicking and holding the title. If we click and hold the lower right corner, we see the outline of a "rubber box" which gets bigger or smaller as we move the mouse. Release the button, and the window takes on the size of the outline. This is called "sizing" the window.

Look on the right and lower edge of the window frame and you'll see the "slide" bars plus some arrows. Sometimes you can only see part of what's in a window. The white slide bar represents the part of the window that's seen, and the textured frame portion stands for the file sectors hidden from view. Click the down arrow. The white slide bar moves down and information in the window scrolls up. You can also drag the slide bar and move it to where you wish within the textured area.

Without closing the A drive window, let's double-click drive B. The B window zooms open and appears, slightly smaller, on top of window A. We can still see part of window A under window B. But now only window B contains all the special frame controls. Window B has become the "active" window. Move the cursor anyplace on window A and click. Window A is re-drawn on top of B and again becomes the active window.

The icons within window A look like file folders or pages. Some are programs, some are text. If we wanted to run one of the programs, we could simply double-click it. If we want to move a file from disk A to disk B, we click it and then drag it to the disk B file cabinet icon.

## DROP DOWN MENUS

On top of the screen is a line with four words: DESK, FILE, VIEW, OPTION. The first thing to notice is you don't have to click these words. Just run the cursor over them and a menu drops down. This is why GEM calls them "drop down" menus.

The DESK menu offers Desktop Info, a Calculator and a Clock. When the cursor is run over these choices—again we don't need to click—they automatically turn black. Click calculator and a pocket calculator appears on the desktop. Handy!

When we run over FILE we might notice that some of the choices are in black and some in gray lettering. We also notice only the black ones react to the cursor. The gray lettering indicates those choices are currently inactive.

If both drive windows were closed and neither drive was highlighted, all of the file choices would be in gray. For example, you couldn't use the Format choice because you have not yet selected a disk to format.

An interesting feature of FILE is Show Info. We can highlight drive A then choose Show Info to find out how many files are on that disk, how many bytes have been used, and how many more are available.

Now that our drive window is opened, we can move to VIEW and see that the choices include: Show as Icons, Show as Text, Sort by Name, Sort by Date, Sort by Size, and Sort by Type.

Also, there are small checkmarks next to Show as Icons and Sort by Name. It doesn't take long to figure that the checkmarks represent the current status of these choices. Our files look like folder icons and they're sorted in alphabetical order. Click on Show as Text and all the little folders are replaced by text name files showing number of bytes, etc.

Mouse on over to OPTIONS and highlight Set Preferences. Among other things, here is where we can set one of the three screen resolution modes: Low, Medium, and High. Another interesting feature in OPTIONS is Save Desktop. Click this and a small file is saved to drive A. Now, when that disk is booted, the desktop will appear in the same configuration of opened windows as it was when it was saved.

We don't have enough room to fully describe all of the drop-down menu choices. Besides, why should we spoil your fun? You now have enough of a start in knowing how to use the GEM desktop so that you won't have trouble figuring out the rest of it when you get your ST. ▲

**Figure 1**

# ST SOFTWARE NEWS

## What's coming from the top developers

by MICHAEL CIRAOLO, Associate Editor

The short but dynamic history of the microcomputer industry has made it clear that success or failure of a new computer like the Atari ST depends largely on availability of outstanding software for it.

That's why **Antic's** exclusive ST coverage each month will bring you the latest news on what programs are being developed by top independent software publishers.

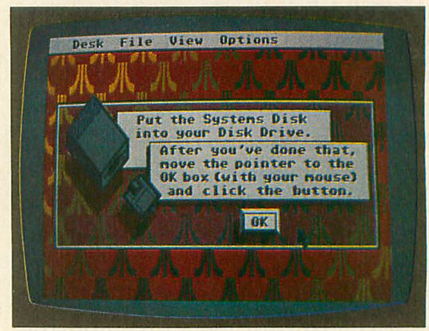
Stoneware, marketer of the best-selling **DB Master** Apple/IBM database, announced an agreement with Atari Corp. to develop a new filing progam for the ST.

According to development manager Stanley Crane, the yet-unnamed "ST filer" will be extremely easy for the entry level home or business user. Users will be able to select colors and change fonts, as well as lay out files to suit individual needs.

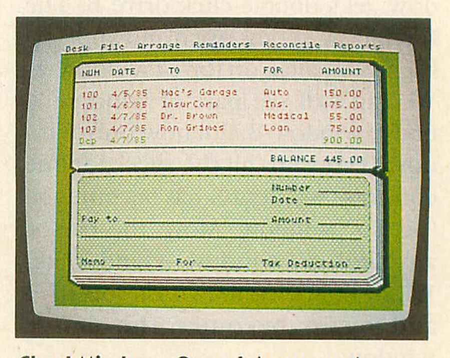
Microbits Peripheral Products of Albany, Oregon, is developing the **Omega** telecommunications package for the ST as well as for existing XE and other 8-bit Atari computers. Omega has icons, windows and pull-down menus. It will use either a mouse or a joystick, said MPP spokesman Kirt Stockwell. The 8-bit version is written in compiled ACTION! and includes a driver to run the Atari mouse.

MPP expects to have Omega running on all Atari machines this summer. Omega will also run on the IBM PC and clones using the C language. The 16-bit program will cost around $50, the 8-bit about $10 less. A 3D battle-zone game for the ST is also under development.

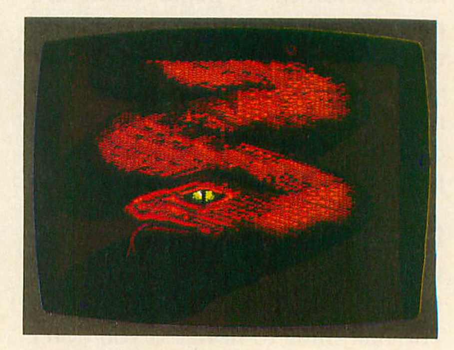
Boston's Spinnaker Software will have eight products for the ST this fall, according to company spokesperson Linda Pollock. Pollock said the products were being developed on Spinnaker's in-house development system used for their adventure games.

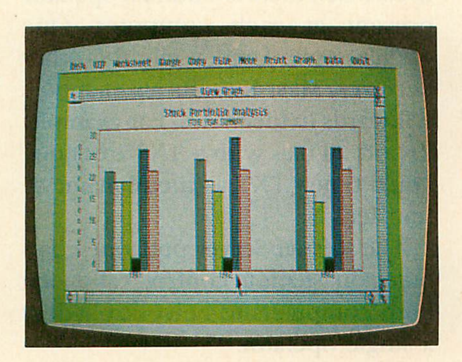


Atari graphics demo.

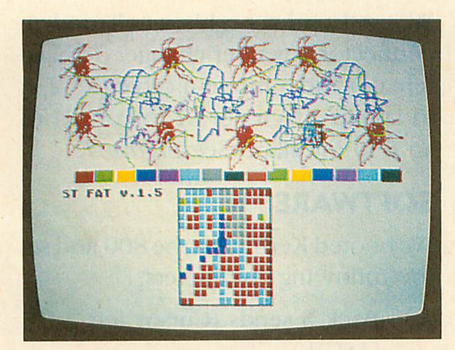


**CheckMinder** — One of six personal productivity packages from HABA Systems.


Atari graphics demo.



**VIP Professional** — A 1,2,3 lookalike from VIP Technologies.




**FAT** — An in-house, Atari "paint" utility under development.

Infocom's Dan Horn said he expects the company's entire line of text adventures to be offered for the STs, but would not specify a date. "We'll announce them 90 days before release," he said. Infocom's in-house development language has been notable for its comparative ease in converting programs for various computers.

Sierra On-Line will bring out the IBM PC favorite **King's Quest** as well as **Ultima II** for the ST, according to Ken Williams.

# ST FILE TRANSFERS WITH KERMIT

## How to "port" programs between Ataris

by CHARLES JACKSON, **Antic** Program Editor

One of the first things we figured out while getting acquainted with the **Antic** development 520ST was how to port standard Atari Logo graphics programs from an 800 to the ST via Kermit.

Kermit is a public domain telecommunications program that lets different types of computers and operating systems swap text files with each other. Thus, software developers may write their applications on one machine and transfer the completed source code to another. Because GEM offers compatibility between different co-processors, there are many companies developing software on the IBM PC who will use Kermit to transfer their C language source code files to the Atari ST.

### MUPPET SOFTWARE

Named after Kermit the Frog, *this file* transfer protocol monitors the flow of information between computers. Kermit can best be compared to

continued on next page

XMODEM protocol. Files transferred through either of these protocols are broken into pieces, or "packets," and sent individually. A checksum, similar to a TYPO II code, accompanies each packet.

Each time the computer receives a packet, it recomputes the checksum, and compares it against the sending computer's original. If the two checksums match, Kermit assumes the packet was received correctly.

If the checksums don't match, Kermit will send the packet again and again, until a match is achieved. Kermit continues sending and checking packets until an entire file is successfully transferred.

Kermit was developed by Bill Catchings and Frank da Cruz at Columbia University in 1981. The first Kermit implementation linked a DEC-20 mainframe to a CP/M-80 microcomputer. Today, more than fifty types of mainframe and microcomputers have Kermit programs.

## ATARI KERMITS

The eight-bit Atari version of Kermit, by John Palevich, was written in ACTION! and then compiled. (You don't need the ACTION! cartridge to use the program.) This Kermit is available through the Antic Arcade Catalog. Kermit is also a part of Palevich's **Chameleon Terminal Emulator**, also available through the Antic Arcade Catalog ($19.95, AP113).

A 520ST version of Kermit came with our ST development package. Its one-letter command format is very similar to UNIX Kermit.

We got both Kermits running in matching configuration on both our ST and an Atari 800 (it could have been any other 8-bit Atari). Then we ported Listing 1 over to the ST. The listing is a simple Atari Logo program that draws a star against a randomly selected background color.

## HARDWARE

We used a printer cable, a null modem connector, a gender changer (female-female) and a modem cable (RS-232 to D9) to attach our ST to Port R1 of an 850 interface. See *Figure 1*.

## SOFTWARE

We booted Kermit on the 800 and set the following parameters:

**A** —Back S sends (Cursor left (ASCII))
**B** —Baud Rate (9600)
**C** —Carriage return includes line feed is (off)
**D** —Default disk drive (D1:)
**F** —File type (text)
**I** —I/O Port (1)
**T** —Dialing method (tone)
**L** —Local Echo (off)
**P** —Parity (none)

Meanwhile, we loaded the ST Kermit program from GEMDOS and typed KERMIT R which put the ST into the Kermit Receive mode.

Back at the 800, we typed S [RETURN], entered the filename of our Logo program and pressed [RETURN] again to begin the transfer.

An instant later, the transfer was over. At 9600 baud, our Logo file and its filename, had been "Kermited" from the 800 to our ST, and automatically written to the ST's disk. At 9600 baud, Kermit ports files very rapidly. In fact, you'd have to type for more than four hours at 40 words per minute to match the amount of information ported during a 60-second file transfer.

## OPERATIONS

Most Kermits support three commands: Send, Receive and Server. Kermit Send and Kermit Receive are used when there is a human operator present at each computer. One operator will Send while the other Receives. Most Kermits also support wildcards in filenames. For example, to port all files with a .TXT extender, you'd type *.TXT as the filename to transfer.

The Kermit Server puts one computer on "remote control," allowing both computers to be controlled by a single operator.

Type KERMIT V to place the ST into the Kermit Server mode. While in this mode, the ST will automatically receive any files (and filenames) sent to it, and save each file to disk.

## MODIFYING FILES

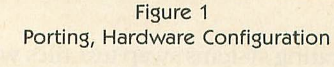
Our sample Logo file needed only one modification before it could run on the ST. The ST Logo didn't permit multiple drawing pens. We removed the pen number from the second line of the STAR procedure, changing that line from SETPC 1 :COLR into SETPC :COLR and the program ran correctly.

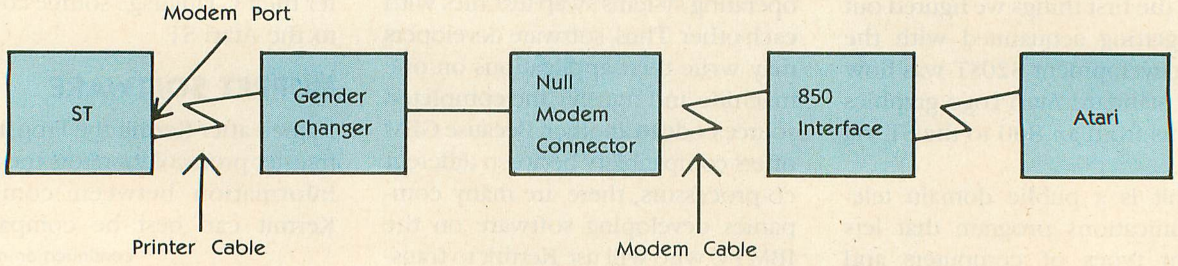
Since then, we've Kermited many more Logo files, LISTed BASIC programs and numerous text files to and from the **Antic** 520ST.

Listing 1

```
TO STAR :LN :COLR
SETPC 1 :COLR
REPEAT 36 [RT 170 FD :LN]
END

TO MAIN :COLR
HOME
SETBG RANDOM 16
CLEAN
FS HT PU FD 90 PD
MAKE "LN 180
STAR :LN :COLR
MAKE "COLR :COLR + 1
IF :COLR = 16 [MAKE "COLR 1]
MAIN :COLR
END
```

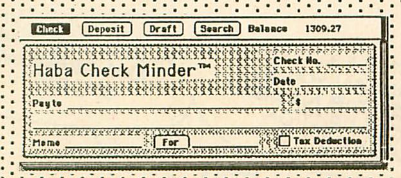

Figure 1
Porting, Hardware Configuration



*Celebrating A New Computer*

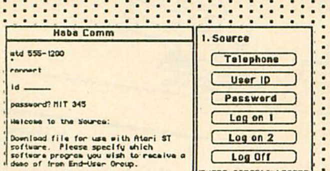
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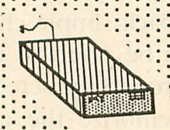



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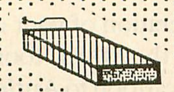
### Haba Hippo "C"™: $59.95

- A complete "C" language development system.
- Includes a full "C" compiler, assembler and linker.
- Supports GEM DOS calls and functions.



### HabaDisk™ 10 Meg: $599.95

- 10 Megabytes of storage capacity.
- Connects directly to your Atari ST.
- Completely self powered.
- Extremely high performance for fast access of information.

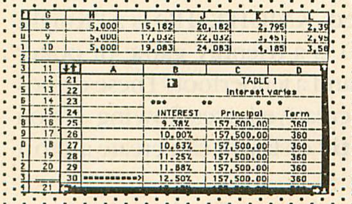


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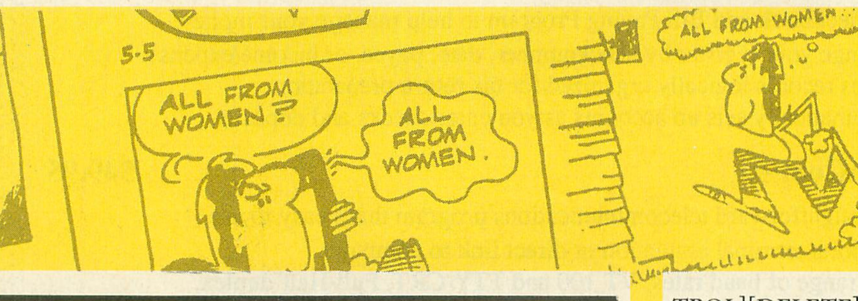
**Shipping:** add $5.00 for software products and $10.00 for hardware products.
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Van Nuys, Ca. 91406

# ATARI 'TOONS

## *Animated cartoons from your computer*

By Matthew Ratcliff




*Create funny and inventive cartoons with remarkable ease by animating text. Save your creations and play them back at any speed. Use ATARI 'Toons for animated title screens on your BBS if you're a sysop. Send* ***Antic*** *your best ATARI 'Toon by Oct. 1, 1985 and you could win a brand new MPP 1200 baud modem. ATARI 'Toons is a BASIC program which will work on all Atari computers that have 32K disk or 24K cassette.*

**animate** \an-ə-met\adj 1:possessing or characterized by life: ALIVE. 2:full of life: ANIMATED syn see ATARI 'Toons

Because the Atari is a creative, graphic computer with several methods of animation built right into it, we tend to forget earlier computer animation techniques. Before player/missiles, page-flipping, and bit-mapping, there was something called "cursor art."

Mainframe programmers who wanted to dress up their programs with a bit of graphics, but were limited by the constraints of text-oriented machines, used cursor art. They still do. It's the most compatible of all graphics techniques because it only requires a cursor and a few simple screen editing commands.

So what is cursor art? It might be defined as animation through editing. Use the [CONTROL] [ARROW] keys and move the cursor—like a small square "bug"—around on the screen. You've just animated the cursor. Place the cursor at the beginning of a line of text, hold down the [CONTROL][DELETE] keys, then watch as the square bug swallows the sentence.

### EASY ANIMATION

With ATARI 'Toons you can create amusing cartoon shows that are easily animated with Atari's [CONTROL] key functions. ATARI 'Toons will put together simple editing functions, memorize them, and play back simple character graphics movie shows which can be saved to disk or cassette. Text can be made to zip around the screen and, with practice, you will soon memorize the control-graphics keystrokes for creating all sorts of 'stick figures' for some quite interesting shows.

After you have mastered the operation of your cartoon studio, be sure to read the rules for the ATARI 'Toons Contest printed nearby. Send your best cartoon to **Antic** before October 1 and you could win a new MPP 1200 baud modem.

For Antic Disk subscribers a couple of demonstration cartoons have been included. KNIGHT.SHO is a "Knight Rider" spoof. POKER.SHO is a friendly game of poker between outlaw Black Bart and a tenderfoot. These demos should help you get those creative juices flowing. If you don't have this month's **Antic** disk you can create a short demo by typing in Listing 3.

Several bulletin boards are known for their good cursor art demonstrations. One is Magic Castle BBS in Los Angeles. Phone (213) 658-7378 between 5 p.m. and 5 a.m. Pacific time and select the Cartoon of the Month. On the East Coast try The Asylum. It's in N. Miami Beach, Florida at (305) 937-1880, available 24 hours at 300 baud.

## TYPING IT IN

• DISK: Listing 1 is ATARI 'Toons. Type it in and SAVE it to disk. Be sure to verify it with TYPO II. Listing 2 must be typed in absolutely accurately. Even though it uses its own checksums, it's a good idea to check it with TYPO II. After correctly typing in Listing 2, SAVE a copy. Then RUN it and it will create a file called CARTOON.SYS which should be on the same disk as Listing 1. Listing 3, when RUN, will create a sample cartoon file called ROBOT.SHO, which can later be loaded from the ATARI 'Toons program. You only need to type it in if you want a sample cartoon.

• CASSETTE: Listing 1 is ATARI 'Toons. Type it in, check it with TYPO II, and CSAVE it to cassette. Now, remove this first cassette, WITHOUT RE-WINDING IT, and put in a fresh cassette. Carefully, type in Listing 2 and CSAVE a copy. Although it has its own checksum routine, use TYPO II for accuracy. Listing 2 must be typed in absolutely correctly. Listing 2, when RUN, will attempt to write to your cassette so, if you wish to test it, test it on a third "scratch" cassette. When you have Listing 2 correctly typed in, place the FIRST cassette back in, set your recorder to RECORD and RUN listing 2. Your cassette tape should now have a CSAVEd version of listing 1, followed immediately by the data generated by listing 2. Listing 3, when RUN, creates a sample cartoon which can be loaded from ATARI 'Toons. Though it need not be typed in, should you decide you want it, be sure and CSAVE it to a fresh cassette, then put in another fresh cassette before RUNning it.

• **Antic** DISK SUBSCRIBERS: The main ATARI 'Toons program is on your disk with the filename ATARTOON.BAS. You can select it from the menu or, from BASIC, type RUN "D:ATARTOON.BAS". There are two cartoon files on your disk, KNIGHT.SHO, and POKER.SHO, which you can load and run from ATARI 'Toons. Both cartoons should run at a speed of 200, with the cursor ON. Note: If you choose to move the ATARTOON.BAS file to another disk, you must also move the ATARTOON.SYS file.

## ATARI 'TOONS MENU

When you RUN ATARI 'Toons, a menu will appear, showing the current size of your cartoon buffer—or memory space—and how much room is left to add onto your cartoon. Below this are nine numbered options and a command prompt. We'll first describe each menu option, then talk about how to use the program.

**1. Load a Show**—When chosen, you will be given the option to enter a filename, or press [RETURN] to first see the directory of any drive (if you're using a disk). You can also press [ESC] at any time to return to the menu. If a cartoon is already in memory, you will be prompted to delete the current show first. Cassette owners type C: [RETURN] to load a cartoon. If you have a disk, type D:FILENAME [RETURN]. When the load is complete, the buffer figures will change depending on the size of the cartoon file.

**2. Save this Show**—Save the show currently in memory. This uses the same procedures as 1, above. If the buffer is empty you will be told and returned to the menu. If the "save" disk filename already exists you will be prompted to overwrite it.

**3. Merge a Show**—This function comes in handy for putting many small shows together as one cartoon series. Once a filename is given, the show's size is checked against the amount of buffer space left. If there is enough room it will be appended to the current show in memory.

**4. Playback Show**—Play the cartoon show at a user selected speed of one to 256, using the last character set enabled (see 8 below). The best animation speeds seem to be from 150 to 200. You may interrupt the show at any time by pressing [START]. Press the [SPACE] bar to start and stop the display.

**5. Edit this Show**—Add to the current show in memory. The display will be switched from the menu to the edit screen. If the show has not been played back in its entirety since it was loaded, merged, or played last; it will be played back at maximum speed to position the cursor.

Any keystroke combination is allowed while editing including the [SHIFT] [CLEAR]. You may use the [CONTROL] [ARROW] keys or a joystick in Port 1 to move the cursor. The proper [CONTROL] [ARROW] keystrokes are placed in the buffer for playback. Press the fire button to place the last character typed on the screen.

Even [SHIFT] [DELETE] and [INSERT] work to move text below the current line up and down. Use [CONTROL] [INSERT] and [DELETE] to move characters to the right of the cursor back and forth. These key functions will "animate" the cartoon show for you. Use [TAB] for fast cursor moves horizontally.

Console keys perform special functions too. Press [START] to playback the current show, at the last speed chosen. Press [SELECT] to delete one or more characters from the end of the show. You will be returned to the menu screen and asked how many characters to delete. Press [RETURN] only to take out the last one typed. If more than one is to be deleted, type the value and press [RETURN].

The program will prompt you for verification before a large delete is performed. After the delete is done, the EDIT screen reappears. The show is played back from the start to reposition the cursor. Note that shows always begin with a clear screen character automatically (keep it in mind if you plan to merge shows). Press [OPTION] to exit the EDIT mode and return to the menu screen. If, while editing, the buffer is completely filled you will automatically be returned to the menu.

**6. Make New Show**—Erase the current show in memory and begin editing another.

**7. Disk Directory**—List a directory of any disk drive to the screen.

continued on next page

**8. Character Set**—If you wish, you may load a custom character set for use during EDIT and Playback. If you don't choose this option, ATARI 'Toons will use the standard Atari set.

If you want ATARI 'Toons to automatically load and enable your favorite character set, put it on your ATARI 'Toons disk and name it CHAR.SET. Other character sets may be loaded using menu option 8. Automatic loading is not available to cassette owners, but custom character sets can be loaded from cassette with this menu option.

**9. Quit ATARI 'Toons**—Exit the program. All RAM previously reserved for the character set and screen flipping will be returned for program use.

## GETTING STARTED

If you've typed in Listing 3 and RUN it, you should have a small demo file which can be loaded with menu option 1, and played with option 4. It's short but will give you a good idea of the potential of ATARI 'Toons.

If you are still a little unsure, the following will lead you through creation of your first ATARI 'Toons show. Select option 6 from the menu, then answer [Y] at the prompt to clear memory. You will be presented with a blank screen and the cursor in the "home" position in the upper left corner. Put a joystick in Port 1 and move the cursor around with the stick to get a feel for its function.



Return the cursor back to the home position. Type [CONTROL] [Q], [CONTROL] [R], [CONTROL] [E], and press [RETURN]. Type [SHIFT] [=], [CONTROL] [T], [SHIFT] [= ], and press [RETURN] again. Next press [CONTROL] [Z], [CONTROL] [R], [CONTROL] [C], and press [RETURN].

You should now have a box in the top left of the screen with a ball inside it. If you make a typing mistake along the way, just press SELECT and [RETURN] to delete the last character typed.

Now use [CONTROL] [UP] or the joystick to home the cursor again. Press [SHIFT] [INSERT]. Notice that the box and ball just jogged down one line. Press the fire button a few times. Now press [SHIFT] [DELETE], and then the fire button until the box is back where it was. Now press [CONTROL] [INSERT].

Move the cursor down one line with the joystick and press the fire button. Repeat this procedure once again. Press fire, move up one, press fire, move up, and press fire. You have just moved the box and ball two places to the right. Try this a few more times and then repeat the procedure with the [CONTROL] [DELETE] key function until the box is back in the home position once again.

Finally press the [OPTION] key to return to the menu. Choose option 4 for playback. Use a speed of about 75 to 100 since this is a short "movie." Select playback with the cursor on. Press [RETURN] to start the show, and presto you have your first cartoon show.

## FOR SYSOPS

These picture files can be loaded into your own programs and played. I modified an AMIS BBS program for one of the local sysops a while back. A new menu option was added so that remote users could see the "movie of the week." This was a quite popular feature. A short routine to read a show and play it back might look like this:

```
10 GRAPHICS 0:OPEN #1,4,0,"D:POKER.SHO
"
20 INPUT #1,A
30 FOR I=1 TO A:GET #1,B
35 ? CHR$(B);
40 FOR J=1 TO 50:NEXT J:NEXT I:CLOSE #
1:END
```

(Note: The first byte of a cartoon file contains the length of the file.)

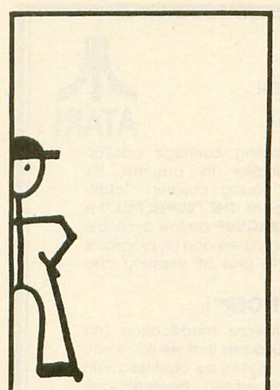
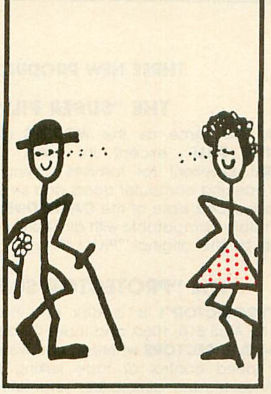
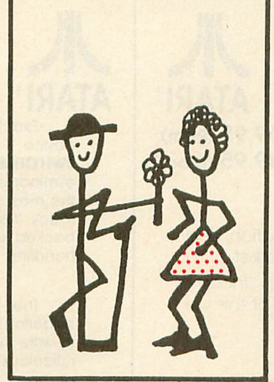
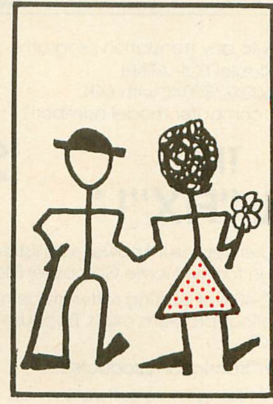
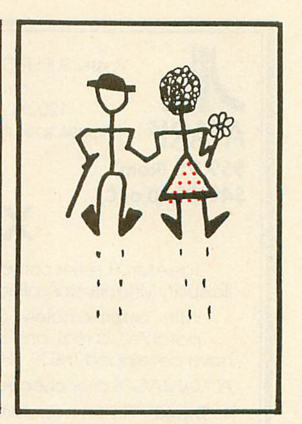
An AMIS BBS could be modified similarly, but the ? CHR$(B) would have to be changed to something like:

```
35 ? #MODEM;CHR$(B);
```

Since this would be sent over the modem at a relatively slow 300 (or 1200) baud, the delay loop in line 40 would not be necessary.

*Matthew Ratcliff has been one of our top program contributors since the early days of **Antic**. His last appearance was in March 1985 with "Custom Print."*



# ATARI 'TOONS CONTEST

## *Win The New MPP 1200 Baud Modem!*

**Antic** had so much fun looking at all the creative entries in our Color The Cover contest a few months ago, we decided to do it again. The first contest conclusively proved that lots of talented computer artists are out there, but how many computer *Hanna-Barberas* will we find this time?

The winning animator will receive one of the brand new MPP 1200 baud modems that plugs directly into your Atari. This is your chance to be a Walt Disney, a Ralph Bakshi, or a Chuck Jones (now *there's* a name for trivia experts). Just send us the best ATARI 'Toon we've ever seen and you'll be logging onto your favorite bulletin boards at 1200 baud speed.

Four runner-ups will win Home-Pak, the popular integrated software package from Batteries Included that contains HomeTerm, one of the finest telecommunications programs for the Atari.

### THE RULES

Create an animated cartoon with ATARI 'Toons and send it to **Antic** on disk or cassette. Include a cover letter with the loading instructions plus some brief information about yourself.

Your letter MUST tell us: the cartoon filename (if disk), whether you want the cursor ON or OFF, and the playback speed. If you want to use a special character set, include its filename and any necessary instructions.

All cartoons must operate on the ATARI 'Toons program as published in this issue of **Antic**—no "customized" programs or autoboot disks please! Cartoons must run no longer than *one minute* at the speed you choose.

Read the instructions for ATARI 'Toons closely and type the listings carefully. Listing 3 creates a short sample cartoon. The **Antic** monthly disk contains two cartoon examples. Those without a disk subscription can order the August disk through the Antic Arcade Catalog. You can find a sample ATARI 'Toon in SIG*Atari, on CompuServe. Look in Data Library 2, for TOON.* as the filename. Cursor art cartoons are also featured on several bulletin boards. Their phone numbers are provided in the main ATARI 'Toons article.

Be as creative as you like with your entries. They can be on any subject and you can work on them solo or with friends. Enter as many cartoons as you wish.

All entries must arrive by October 1, 1985. Send to: Cartoon Contest, **Antic**, 524 Second Street, San Francisco, CA 94107.

The names of the contest winner and runner-ups will be published in our January 1986 issue. The winning cartoons will on the **Antic** January disk and available earlier via SIG*Atari. All entries become the property of Antic Publishing, Inc. and will not be returned. Contest is void where prohibited.




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**REQUIREMENTS:** The **"IMPOSSIBLE"** diskette, the 4K STATIC RAM pack, a 400 or 800 computer (please specify!) with 48K and "B" Rom's. NOTE! The very old ATARI computers were shipped with "A" Rom's which had some serious "Bugs". Even if you don't own an **"IMPOSSIBLE,"** you should upgrade to "B" Rom's (simple to install!) We have them available at a very inexpensive price. CALL US! "XL" version available soon!

**NOT A PIRATING TOOL:** We at C.S.S. did not design The **"IMPOSSIBLE"!** to put Software Manufactures out-of-business overnight! Nearly all of **our** products have been "ripped-off" by industry parasite who have little or no ability to develop a product of their own so we can sympathize with their dilemma. All C.S.S. products have built-in safe guards which prohibit their use for flagrant pirating. The "IMPOSSIBLE"! is no exception! While The **"IMPOSSIBLE"!** back-up the most heavily protected programs, it also checks to see that the 4K STATIC RAM pack is installed before allowing the backup copy to execute!

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by JAMIE SUTHERLAND

"Beware the Invisible Ghouls! They suck the very strength from your sinews." The old man had whispered this warning last night in the shadowy tavern. "Dimlit Forest is cursed," he croaked fearfully. "If you enter those vast, silent woods there is no way out . . . except one almost too terrible to contemplate!"

But you are the daring adventurer Hardluck and you laugh in the face of terror. Already you have ridden through 500 miles of danger just to arrive at this last outpost on the edge of the dread forest.

No, words do not scare off mighty Hardluck so easily! You will seek whatever truth lies behind those old tales. The legendary Golden Sword, a prize worth a kingdom, is said to be hidden somewhere in Dimlit Forest!

With light heart and head held high you enter the forest. Soon the great trees of Dimlit are towering over you for mile after mile in every direction, an impenetrable green labyrinth of death. Too late you discover there truly is no way out—except the one desperate route whispered to you in the tavern three long nights ago.

Now you have only one faint hope. You must find the Magic Key and use it to open the Doorway of Doom leading down to the Underground Fortress of Invisible Ghouls!

You know that once you have entered the fortress you can begin searching for treasures and for more keys to unlock doors as you quest for the Golden Sword. Only after you have found the Sword will you seek the Heroes' Exit that is your one way out.

The Ghouls chuckle that your mighty strength will provide them with a tasty feast indeed. They bid you welcome as their bony fingers beckon you downward into the darkness . . .




*Valiant is a big, fast-scrolling maze adventure from the author of "Arena Racer" (**Antic**, May, 1985). You must find the Golden Sword, avoid the Invisible Ghouls, and somehow discover the Heroes' Exit. The BASIC program works on any Atari computer with 32K disk or 24K cassette.*

## GETTING STARTED

Check Listing 1 with TYPO II as you type it in. SAVE the program before you RUN it. Use the joystick to scroll the screen window. You can only move UP, DOWN, LEFT and RIGHT, the diagonals are not used.

You collect points for each treasure you take. But keep away from those Invisible Ghouls! Your 100 Strength Points will be ghoulishly sapped away from you until you have no strength left and die.

Your final score is based on the number of treasures you have taken and the number of Strength Points you have left.

## PROGRAM TAKE-APART

The initial set-up is in lines 1000 to 1370. Here variables are DIMensioned and initialized, the character set is redefined, graphics modes and colors are set, and the map is defined.

Lines 1350 to 1510 are small subroutines for picking up objects and erasing them, and ending routines.

All the movement is controlled in lines 10 to 50:

**10** Calls the machine language window routine.

**20** Assigns the variable "S" to the value of the joystick.

**30-40** Determine the direction you are trying to move in, and assigns this to variables "XD" and "YD."

continued on next page

## game of the month

**50** Permits movement if nothing is in the way.

**60-130** Determine nature of obstruction, and act accordingly.

**140** GOSUBs to the subroutine that displays your status (strength points, gold, etc.).

### SCROLLING WINDOW

More experienced and adventurous programmers will be able to alter the scrolling display to suit themselves, or use it in other programs.

The machine language DATA is in lines 5000 to 5090. The fourth and fifth elements of DATA in line 5020 are the position of the window on the video screen (256* fifth element+ fourth element), with 40320 being the upper-right corner of the GRAPHICS 1 screen.

The third element in line 5030 is the width of the window. This can be up to 20.

The sixth element in line 5040 is 20 minus the width of the window.

The second element in line 5050 is the height of the window * 20. The window can be up to 12 characters high.

The seventh element in 5070 is the width of the large display map. It can be up to 255. (In this case it is 70, the width of the dungeon.)

The second and third element in line 5090 is the location of the character in the center of the window, and the last in line 5080 is the internal value of the ATASCII character to be used (Hardluck, spaces, doors, etc.).

The routine is called by the statement:

```
A=USR(1536,ADR(S$)+70*Y+X)
```

### DUNGEON EDITING

The DATA for the dungeon is stored in lines 5200 to 5680. It can be changed to create your own custom adventure. There are only a few guidelines to follow.

The "MAP" is stored in a 70 by 49 grid of characters in "S$." The way to set-up the DATA is to first draw the dungeon map on a piece of graph paper and then transfer it to the DATA statements. The vertical dimension of the map is limited only by your computer memory, but the horizontal dimension should remain 70, unless you change the machine language routine accordingly.

The four rightmost and leftmost columns, and the top and bottom four rows must be "BRICKS," creating an outer frame.

The position of the door at the exit should remain the same, or the X, Y postion check in lines 80 and 90 must be changed to suit the new position.

The lines of DATA should contain 70 characters each (these are HORIZONTAL ROWS).

The following are characters used in DATA statements for the dungeon:

| | |
|---|---|
| **BRICKS** | ="A" |
| **INVISIBLE GHOULS** | ="@" |
| **TREES** | ="INVERSE L" |
| **SPACES** | ="CTRL-," |
| **DOORS** | ="CTRL-K" |
| **KEYS** | ="INVERSE CTRL-J" |
| **GOLD** | ="INVERSE CTRL-C" |
| **SWORD** | ="INVERSE CTRL-E" |

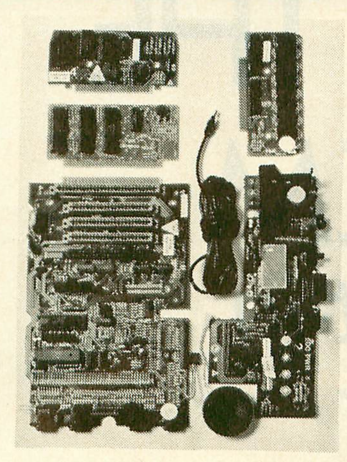
The trees are somewhat more difficult to explain. They may be changed by inserting arbitrary numbers ranging from 1 to 32 in lines 5720 and 5730.

*This is the second **Antic** Game of the Month from Jamie Sutherland, a Bend, Oregon high school junior. His debut, "Arena Racer," appeared in the May, 1985 issue.*

Listing on page 68



# SPARE PARTS FOR YOUR ATARI



**New Spare Parts For Atari 800/400/810**

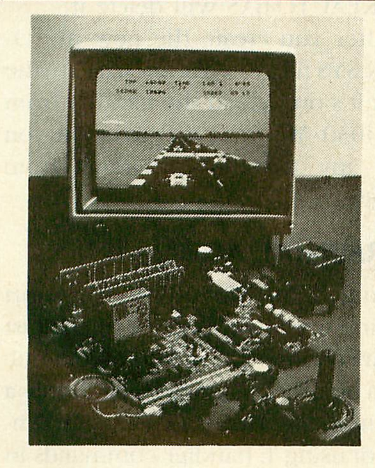
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On 800/400 Main: Pokey, 6520 PIA
ON 810 & 850: MPU 6507, PIA 6532, RAM 6810, ROM C
Power Paks 800/810 ........ $20 ea 800 XL ........ $30 ea
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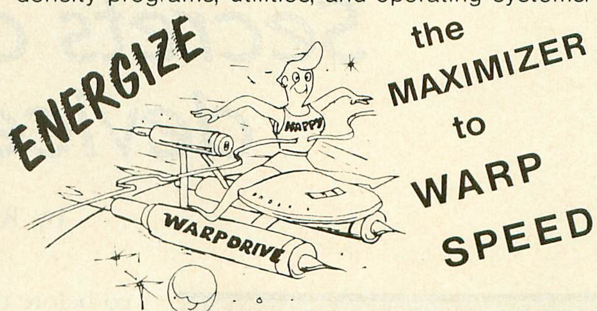
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# UNLEASHING THE 1030 MODEM

## *Secrets of its built-in device handler*

by RUSS WETMORE

*How to access the powerful commands of the little-known device handler software built into the popular Atari 1030 modem. Learn how to use these commands in your own telecommunications programs. Includes two short BASIC programs to get you online. These programs work on all Atari computers of any memory size, with disk or cassette.*

This article will tell you some things you probably didn't know about the inexpensive and widely-used **Atari 1030 Modem**.

If you own a 1030, you may be already aware that you don't *need* to use the built-in ModemLink telecommunications software—which cannot transfer program or text files.

**Antic** readers are likely to know there are several programs available that enable the 1030 to upload and download files. From the Antic Arcade Catalog you can purchase **TSCOPE** (PD024) and **Chameleon** (AP113). Or you can use the Home-Term program on **HomePak** ($49.95, Batteries Included), of which I happen to be the author.

There are other public domain programs for the 1030, but these require using a special program called a "device handler" which must be loaded before the terminal program can operate. A device handler is a machine language program that tells your computer how to talk to its peripheral devices. Disk drives use a D: handler, printers use a P: handler.

### BUILT-IN HANDLER

Contrary to popular belief, you *don't* need a separate handler. The 1030 contains a built-in device handler that you can easily access. It's called T: handler and it even supports tone dialing—which the various public domain handlers do not!

In this article I'll show you how to access the 1030 T: handler with your computer and use it when you write your own terminal (telecommunications) programs. I also provide a very simple program to show how some of the commands are used in BASIC.

### MEET MR. T:

Most other modems use a device handler labelled R:, but the device handler inside the 1030 is named T:. After it is installed, you can access it through normal device commands—OPEN, CLOSE, INPUT, PRINT, GET, PUT and STATUS.

Unlike many other device drivers, the T: handler in the 1030 is *not* relocatable. The program will always load at memory location $1F00. It would overwrite part of BASIC's memory (causing a crash) if you initialize BASIC *before* loading the handler.

For this reason, you must use an AUTORUN.SYS program on a set-up disk to arrange your computer's memory pointers before BASIC is initialized. That's where MAKE-AUTO.BAS comes in.

Type in Listing 1, check it with TYPO II and SAVE a copy. Make sure that you don't already have an AUTO-RUN.SYS on the disk you SAVE this listing to—unless you don't mind that MAKEAUTO.BAS will delete it.

After you create the new AUTO-RUN.SYS file, you'll boot (start up) the disk it's on to load the handler from the 1030. You *must* do this before you run any terminal programs from BASIC.

### TERMIN(AL)ATOR

Listing 2, MINI1030.BAS, is a short 21-line terminal program that is just smart enough to log you onto a bulletin board. This program is simply a learning tool that provides an example of using T: handler commands in BASIC.

Type in Listing 2, checking it with TYPO II. The program defaults to tone dialing, so you must delete line 18 if you need to use pulse dialing. SAVE the corrected listing.

Place in your drive the disk containing the special AUTORUN.SYS file you created earlier from Listing 1, and turn on your computer. If you own an older Atari 400 or 800 model, turn

it on with the BASIC cartridge plugged in.

RUN Listing 2 and then type in the phone number you wish to dial and press [RETURN]. After your modem has detected an open connection, the screen will turn from black to dark blue and you'll be online.

## USING T: HANDLER

Aside from the normal CIO (Central Input/Output) device commands, the 1030 T: handler supports 20 additional control commands which are listed in *Figure 1*. Unlike most handlers, special commands aren't sent by issuing an XIO statement. In fact, if you try it you'll get an Error 146 "Function Not Implemented."

T: handler special commands are sent to the modem as strings of characters, commonly called an "escape sequence." This method is not unlike the way printer control codes are transmitted, but the 1030 is the only modem I know of that works this way.

All command strings have at least two elements. The first is the [ESC] key (ASCII 27). The second is an ASCII letter from A to Z. Some commands require additional keys.

Some of you might be wondering how the modem can tell the difference between command strings and actual data. A non-zero byte in the handler variable CMCMD (memory location 7) alerts the handler to be on the lookout for escape sequences. If CMCMD is zero, then command strings are passed as normal character data.

Therefore, the handler only begins processing an escape sequence if it is NOT already processing a command, if CMCMD is not zero, and if the output data byte received is [ESC].

Once a command sequence has started, it will be completed no matter what CMCMD contains. Before the handler executes the command, it finishes sending whatever is left in its output buffer. While the command is being executed, the modem is still collecting input, so you don't lose any characters.

An example command is Set Parity, which is command [C]. To set this command from BASIC, you'd type something like:

```
PRINT #MODEM; CHR$(27); "C";
CHR$(PARITY)
```

In the above example, PARITY is a command parameter telling the handler what to do with input and output parity. This is similar to an OPEN call where a parameter of 4 means Read and 8 means Write. An example of a command without any parameters is On-Hook, which is the command [M]. This command hangs up the phone:

```
PRINT #MODEM; CHR$(27); "M"
```

The 1030 demands total control of the serial bus in order for it to keep up with the constant bit stream going in and out over the phone line. This means when the modem is active, you can't use any serial devices such as disk drives and printers.

## SUSPEND & RESUME

To temporarily put the 1030 "on hold" so that you can use other serial devices, you must send it a Suspend command. (See *Figure 1*). While the modem is suspended, it does not receive any characters. For that reason, before your software issues the Suspend command it should first stop the sender from continuing.

How this is done depends on the system. Normally you send an XOFF character ($11 hexadecimal, or 17 decimal), then wait for the sender to stop transmitting data. Now you may issue the Suspend command. You send a Resume command once you're ready for the modem to continue. Afterwards an XON ($13 hex, or 19 decimal) goes out to signal the sender to continue.

It is important to note that CLOSE-ing the modem hangs up the phone. You should only CLOSE the modem device at the very end of your program. Also the handler does not accept any escape sequence commands while it is Suspended, except for Resume or CLOSE.

## MODEM STATUS

There are two ways of obtaining the modem's present status—the normal CIO STATUS command, or an [F] escape sequence. They both function identically.

When executed, either method returns four bytes into DVSTAT to DVSTAT+3 (memory locations $2EA to $2ED hexadecimal, or 746 to 749 decimal). The meaning of these status bytes is illustrated in *Figure 2*. You can use a status to determine handler errors. Or you can use it to find out the current condition of the modem—whether a carrier is present, whether the phone is on or off the hook, whether the modem is in tone or pulse dialing mode, etc.

## BUFFERS

The input buffer is 256 bytes long. You can determine how many characters are waiting to be input by monitoring the device variable INCNT (memory location $400 hex, or 1024 decimal). In effect, you can tell if any bytes are waiting to be input if INCNT is not zero. If the buffer becomes completely filled, an error flag is set that you can monitor with a STATUS command. New characters will then be thrown away until you empty part of the buffer.

The output buffer is 64 bytes long. The number of characters waiting to be sent is kept in the handler variable OUTCNT (memory location $401 hex, or 1025 decimal). If you try to send data to the modem when the output buffer is full, the handler will loop until characters have been sent and the buffer again has room for your data.

## ERRORS

There are two types of errors that you'll encounter while using the 1030 T: handler. During standard device commands such as OPEN and PRINT, CIO will signal errors by way of the normal CIO error return. Those errors not directly related to the CIO subsystem—such as loss of carrier, parity

continued on next page

errors, etc.—are signaled by setting appropriate bits in the status table at DVSTAT. See *Figure 3* for a complete listing of T: specific CIO error codes, and *Figure 2* for status table error flags.

*This is the first **Antic** article from the well-known and highly respected programmer of **Preppie** and **HomePak**. Russ is currently using the GEM system to develop ST software.*

FIGURE 1

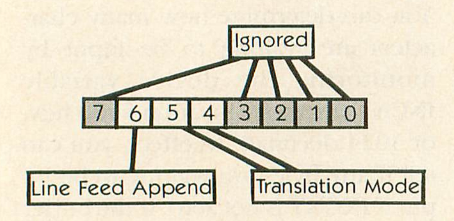
## T:handler Special Commands

### Set Translation: **ESC A p1 p2**

Two bytes follow the ESC A sequence. The first (p1) specifies the translation options, the second (p2) is the "will-not-translate" character. This is the character that replaces any non-ASCII characters that are received.

The translation byte is interpreted as follows:

Diagram A




**Bit 7:** Ignored.

**Bit 6:** Append line feed. This bit, when 1, specifies that a LF (ASCII 10) shall be sent after a CR (ASCII 13). This mode only works in the "light" or "heavy" translation modes (see Bits 4-5). The LF is sent whether the CR came from an ATASCII graphics character 13 or from a translated ATASCII EOL (155) (RETURN key value). Default is 1 (on).

**Bits 4-5:** These bits set the translation mode.

10 or 11 mean that no translation is to be done on either input or output data.

When 00, "light" translation is done. During input, CR's (ASCII 13) are translated to ATASCII EOL's (155). During output, EOL's are changed into CR's. Either direction, bit 7 is cleared (except for EOL's on input).

When 01, "heavy" translation is done. CR's and EOL's are handled as in the 00 mode. During input, all bytes that don't have an ASCII equivalent are changed into the "will-not-translate" character described above (i.e., all values below 32 and above 124). During output, any such non-ASCII codes are suppressed and **not** sent.

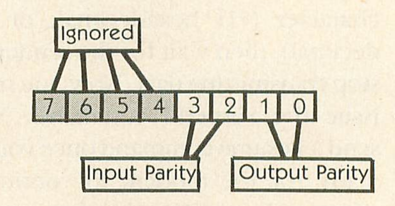
**Bits 0-3:** Ignored.

### Set Parity: **ESC C p1**

One byte follows the ESC C sequence. This command sets what type of parity checking, if any, is done on both input and output data. Parity checking/setting is always done *before* an input byte is translated (see above) and done *after* translation of a byte to be output.

The parity parameter byte is interpreted as follows:

Diagram B




**Bits 4-7:** Ignored.

**Bits 2-3:** These bits specify parity checking on input data.

00 means that no parity checking is done. The input byte is passed unchanged.

01 means that odd parity checking is done. In odd parity, the high bit of the incoming byte is set if there are an odd number of bits set in the remaining 7 low order bits. After the check, bit 7 is stripped off (set to 0).

10 means that even parity checking is done. Even parity is just like odd, except that the high bit is set if there are an even number of bits in the remaining 7 low order bits. The bit 7 is stripped off.

11 means no parity checking is done, but bit 7 is stripped off anyway.

**Bits 0-1:** These bits specify parity checking on output data.

00 means that no parity checking is done. The output byte is passed unchanged.

01 means to set odd parity. In other words, bit 7 of the output byte is set if there is an odd number of bits in the remaining 7 low order bits.

10 means to set even parity. Bit 7 is set if there is an even number of bits in the remaining 7 low order bits.

11 means to *always* set bit 7.

### End of Commands: **ESC E**

This command is basically a shortcut for setting CMCMD (handler variable at memory location 7) to 0 after all handler commands are finished being sent (see text). After this command, no more ESC sequences will be recognized until CMCMD is set to non-zero again.

### Status: **ESC F**

This command duplicates the normal CIO STATUS call. Four status bytes are returned to DVSTAT to DVSTAT+3 (memory locations 746 to 749). See *Figure 2* for information on what these bytes contain.

**Send Break Signal: ESC H**

Some mainframe systems require you to send a special type of signal, called a BREAK. This is accomplished by holding the outgoing bit stream high for 500 ms. This command is handled a little differently from the others in the command list. Once you have sent the command, control is immediately returned to the program, but the BREAK signal continues being sent until it is finished.

Any data in the output buffer (and any new output characters sent to the handler) are buffered until the BREAK is finished. If another command is issued before the BREAK has terminated, the handler waits for the BREAK to finish, then outputs the contents of the output buffer before executing it.

**Set Originate Mode: ESC I**
**Set Answer Mode: ESC J**

For asynchronous (full duplex, two-way simultaneous) communications, one side must be set to "originate" mode, the other to "answer" mode. Generally, the caller is set to originate mode, and the "callee" is set to answer mode. For communicating with a BBS and services like CompuServe, you should be in originate mode—for talking with another computer owner directly, one or the other of you should be set to originate. Originate mode is the default mode.

**Set Pulse Dialing: ESC N**
**Set Tone Dialing: ESC O**
**Dial Phone: ESC K p1 p2 . . . px**

These commands handle dialing mode and actual dialing out through the modem. The default is for pulse dialing.

Any number of ASCII numbers can follow the ESC K sequence. It isn't required for you to send the entire phone number sequence at once—you can send them one at a time if you want to do something special like output the numbers to the screen one by one as you send them.

The handler assumes that each number that is sent might be the last, and starts a 30 second timeout period to monitor the presence of a carrier signal. If no carrier signal is detected after 30 seconds (and if no more dial commands are sent), then the modem places the phone "on-hook" (hangs up the phone), which can be detected by doing a STATUS call to the handler.

For delays, send a comma instead of a number in the ESC K sequence string. This pauses the dialing for 3 seconds per comma.

An example: You want to dial 555-1212 from a CENTREX type office system, which requires that you dial a 9, wait 3 seconds, then dial the rest of the number. The ESC K command string in BASIC for this would be:

```
PRINT #MODEM; CHR$(27); "K";
"9,555-1212"
```

**Take Phone Off-hook: ESC L** (pick up phone)
**Put Phone On-hook: ESC M** (hang up phone)

The above two commands pick up and hang up the phone. When the phone goes off-hook, a 30 second timeout period is begun for detecting the presence of a carrier signal. If none is detected, the phone is hung up. Putting the phone on-hook can be used to prematurely terminate a dialing sequence, to terminate waiting for a carrier, or just to disconnect the modem from the phone line.

**Start 30-second timeout: ESC P**

This is the command for manually initiating the 30 second timeout period described above in the dialing and off-hook commands described above. Note that the mentioned commands do this automatically for you—you don't need to execute this command yourself in most normal circumstances.

**Reset Modem: ESC Q**

This command reinitializes the modem to its default conditions.

**Set Analog Loopback Test: ESC W**
**Clear Analog Loopback Test: ESC X**

These two commands control "analog loopback testing." In English terms, this turns on an endless loop between your computer and the modem. Any characters sent to the modem are echoed back to you as if you were online and receiving characters. Used primarily to test that all characters are being received and sent unaltered by the modem.

**Resume Modem: ESC Y**
**Suspend Modem: ESC Z**

See text for subleties of "Resume" and "Suspend." Because the 1030 requires total control over the serial bus during operation, you cannot use other serial devices such as printers and disk drives. You must suspend the modem first, then resume when you are ready to return online.

continued on next page

FIGURE 2

## Meaning of Returned Status Bytes in DVSTAT

When a CIO STATUS call is made, or the ESC F sequence is sent to the modem, the handler returns four bytes to DVSTAT to DVSTAT+3 (memory locations 746 to 749). Only the bytes at DVSTAT and DVSTAT+1 have significance:

***DVSTAT—Hardware Errors:***

**Bit 7:** Framing error encountered on received data. Because serial data is nothing but a series of 1's and 0's, some protocols have been established to help the modem tell where each byte of data begins in the bit stream. This error means that somewhere along the line, the modem was wrong in detecting what it thought was the beginning or end of a bit stream representing a byte.

**Bit 6:** Byte-level overrun encountered. This happens when the modem detects a character to be received before the latest character has been fetched by the handler. This command is not likely to happen unless your program has extensive interupt driven subroutines which prevent the modem interupts from being serviced often enough.

**Bit 5:** Parity error encountered on incoming data.

**Bit 4:** Wraparound error. The input buffer has completely filled and old data is being overwritten. The input buffer is considered "circular" — that is, the pointer into the buffer is reset to the start of the buffer when it reaches the end. You aren't fetching characters from the handler fast enough, basically.

**Bit 3:** Always 0.

**Bit 2:** Always 0.

**Bit 1:** Always 0.

**Bit 0:** Illegal command given to handler. This is the handler's version of a CIO 146 error. You gave the handler an improper escape sequence command. It only applies to the most recent command—it is reset upon acceptance by the handler of a valid one.

***DVSTAT+1—Current Modem status:***

**Bit 7:** Carrier detected. It's a 1 when a carrier is present.

**Bit 6:** Always 0.

**Bit 5:** Analog loopback test status. Is a 1 when test is active.

**Bit 4:** Originate/Answer flag. Is a 1 when in answer mode.

**Bit 3:** Always 0.

**Bit 2:** Dialing mode flag. Is a 1 when in tone dialing mode.

**Bit 1:** Always 0.

**Bit 0:** Hook status. Is a 1 when phone is off-hook (modem is online).

FIGURE 3

## CIO Error Number Meanings

These are the CIO errors most commonly encountered with the T:handler.

**128**: You pressed the BREAK key.

**129**: You tried to open an IOCB, and it was already open.

**131**: IOCB was opened as read only, and you tried to write to it.

**132**: You gave the handler an invalid command.

**133**: IOCB isn't open, and you tried to do I/O with it.

**134**: The IOCB you passed doesn't make sense (too high a number).

**135**: IOCB was opened as write only, and you tried to read from it.

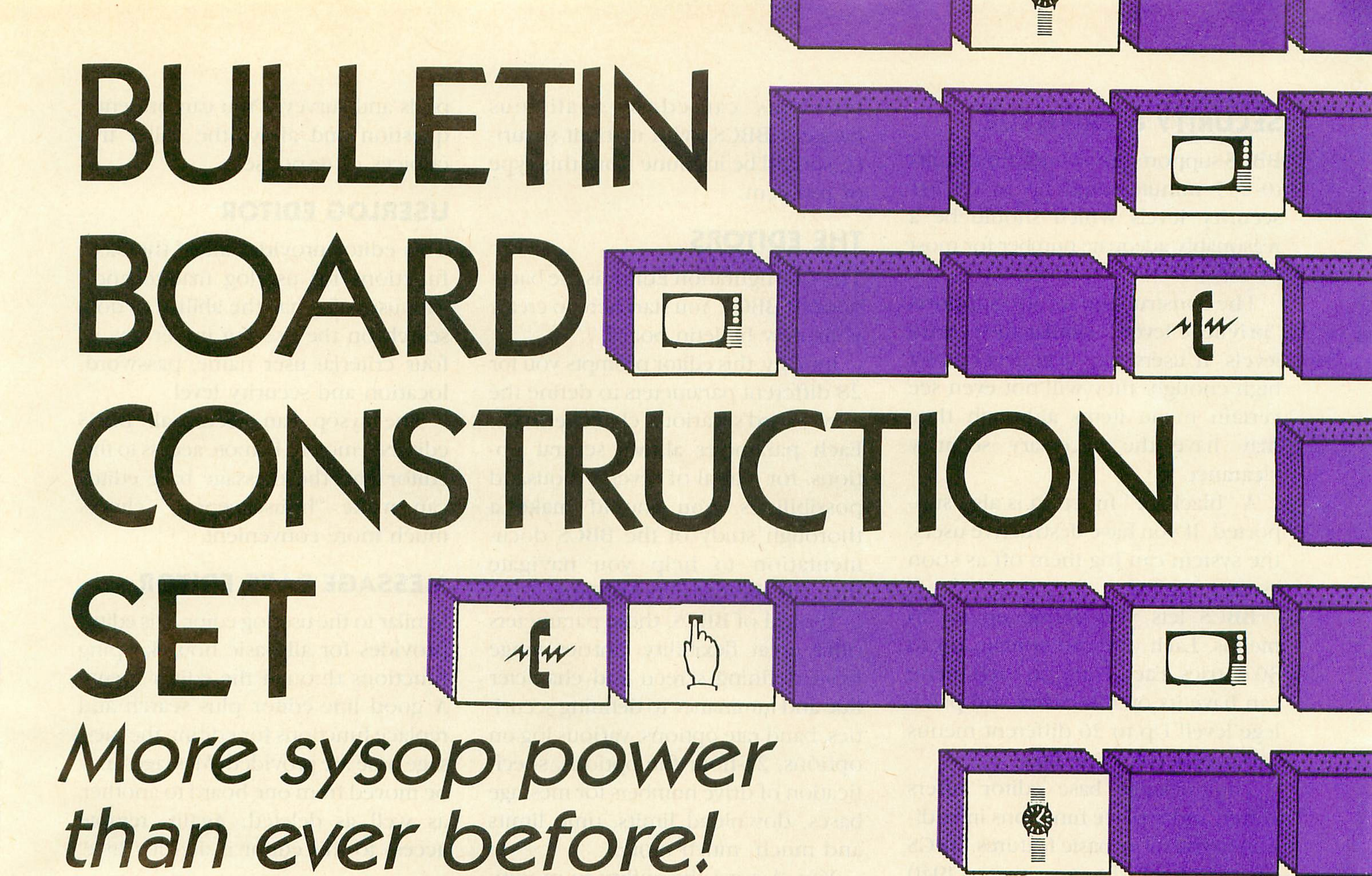
**136**: End of file error. During input or output, it means that the carrier was lost.

**138**: Device timeout. The modem isn't responding. It usually means that the handler hasn't been loaded or has been accidentally overwritten, or the SIO cable is defective or pulled loose.

**146**: You tried to execute an XIO command other than normal CIO functions. This handler works strictly through ESC sequences, unlike most other handlers.

Listing on page 64. 

# BULLETIN BOARD CONSTRUCTION SET



## More sysop power than ever before!

by ERIC CLAUSEN

*For several months prior to this article, **Antic** has known that the Bulletin Board Construction Set was nearing completion. And we eagerly awaited the chance to examine the program and see it at work online. As soon as we received our test copy, we assigned the review to telecommunications buff Eric Clausen, author of our definitive article "Everything You Wanted To Know About Every DOS" (July, 1984). Meanwhile, as the article was being written, **Antic** Marketing Services Director Gary Yost made contact with the author of BBCS and obtained it for sale via the Antic Arcade Catalog!*—ANTIC ED

Once in a while new software appears that's so unique, innovative and useful that it changes the lives of many users. One of these rare programs is the Bulletin Board Construction Set (BBCS).

Scott Brause, sysop of the Jersey Atari Computer Group, spent two years writing BBCS as a solution to his problems with AMIS, FOREM, and other Atari BBS programs.

The result is a 48K machine language (not compiled BASIC) program that lets a sysop control advanced features which were previously difficult or impossible to implement on Atari BBS programs.

Unlike the commercial software "construction sets" most of us have seen, BBCS does not use icons to represent functions. Instead the BBCS master disk contains four main BBCS editors, in addition to the main BBCS program.

These editors, through their own menus and submenus, set up all the system files, message bases and so on. They do most of the programming for you, giving sysops who are not expert programmers the freedom to personalize their Atari boards in a way never before possible.

In fact, there are so many possible ways to implement BBCS that you could end up with a sloppy bulletin board design. So be careful not to leave any loose ends as you design a board accurately reflecting your real wants!

BBCS is compatible with most Atari DOS's in most densities. This could be especially valuable to sysops with unusual hardware configurations.

If you are using the Hayes version of the BBCS, it supports the Hayes Chronograph through Serial Port 2 on the 850 interface. BBCS will also support the new R-TIME cartridge from ICD, Inc. This is a cartridge-based chronograph with battery backup and it doesn't require the 850 interface. The value of chronograph support becomes evident after you've manually entered the time and date a few hundred times. In addition, the accuracy of hardware clocks is generally better than software clocks.

continued on next page

## SECURITY & PRIVILEGE

BBCS supports passwords, time limits (0-255 minutes) and up to 65,791 security levels which should be a reasonably adequate number for most of us.

The construction set also supports "privilege levels," similar to security levels. If users' privilege level aren't high enough, they will not even see certain menu items although they may have the necessary security clearance.

A "blacklist" function is also supported. If you have destructive users, the system can log them off as soon as they log on.

BBCS lets you define up to 26 menus. Each one can contain up to 30 entries. Each entry on each menu can have its own security and privilege level! Up to 26 different menus can access the same files.

The message base editor offers search and replace functions in addition to the more basic features. BBCS allows individual messages up to 1940 bytes in length (15 single density disk sectors) with up to 257 messages online at a time.

For uploading and downloading, BBCS supports XMODEM and ASCII XON/XOFF file transfers. You can limit the number of downloads per person from 0-255 in each online session. Also, if a caller attempts to download a file whose transmission time exceeds the caller's remaining online time, the download will not be permitted. And, yes, BBCS definitely supports 1200 baud. Before a download takes place, the program calculates the actual transmission time at the current baud rate and reports it.

BBCS allows you to define up to 26 different terminal types (25 besides Atari), so owners of non-Atari computers can access your board if you so desire.

All of the BBCS editors are accessible from DOS or from within BBCS itself. This lets you completely reconfigure the board, clean up message bases and perform other housekeeping chores from a remote location. With any other BBS program lacking sufficient security, this could lead to problems caused by malicious hackers. BBCS, with its tight security, should be immune from this type of problem.

## THE EDITORS

The Configuration Editor is the backbone of BBCS. You start here to create your new bulletin board.

Initially, this editor prompts you for 28 different parameters to define the new board's various characteristics. Each parameter allows several options, for a total of several thousand possibilities. You should make a thorough study of the BBCS documentation to help you navigate through the many possibilities.

Typical of BBCS, these parameters offer great flexibility. Entries range from defining screen and character hue and luminance to defining securities, baud rate options, various log on options, 24-hour file options, specification of drive numbers for message bases, download limits, time limits and much, much more.

You also get the ability to modify previous system configuration files without re-entering all 28 parameters. In addition, a utility to define or edit different terminal types (up to 26) is included. A userlog and message base initializer is provided as well as a utility to increase the size of previously existing message bases and userlogs.

## MENU/POLL EDITOR

This is the primary editor for defining system menus and creating online survey polls.

All menus can contain up to 30 different options, each with its own security and privilege level. Actually, you have up to 47 possible types of menu entries—of which up to 30 may be chosen. However, several of these are reserved for sysop use only and some are reserved for future revisions.

All menu entries and security levels are defined here. This can be a lengthy process and a great deal of planning is required to produce a unique, interesting board. Fortunately, editing of previously defined menus is provided in a simple and direct fashion.

The survey creator sub-menu allows an easy way to create online polls and surveys. You can present a question and allow the caller five choices of response.

## USERLOG EDITOR

This editor provides all of the basic functions for userlog maintenance. The user also has the ability to do a search on the userlog under any of four criteria: user name, password, location and security level.

The sysop can access all BBCS editors remotely. Remote access to this editor and the message base editor can make "housekeeping" chores much more convenient.

## MESSAGE BASE EDITOR

Similar to the userlog edior, this editor provides for all basic housekeeping functions through the editor menu. A good line editor plus search and replace functions for editing the message base are provided. Messages may be moved from one board to another, as well as deleted. Again, remote access to this editor is awfully nice.

## BBCS MAIN PROGRAM

After the editors have done their work and created all necessary system files, you're ready to boot the main BBCS program.

When you do, the system asks you for date and time, and then gives a system status report including available disk storage, time, message base status, number of callers (probably zero at this point) and so on.

When a caller logs on, complete information regarding that caller is displayed to the sysop and recorded by the system.

## TROUBLE IN PARADISE?

Since many alternate DOS's are supposed to be compatible, I immediately made a DOS XL (Axlon Ramdisk) copy of BBCS. This is a favorite of mine due to its Atari file compatibility and its Ramdisk support. Apparently MEMLO is too high with this particular DOS and memory conflicts with some of the editors made it impossible to use. This is a problem for me because I'd like to be able to use my Ramdisk for ultra fast file access

continued on page 47

# PRO*TERM: SUPERB NEW MODEM PROGRAM

## Autodialing SPRINT or MCI from your 1030

by MATTHEW ARRINGTON

*A terminal program for your 1030 that lets you upload and download files in capture and XMODEM protocol. From the author of "Term1030," one of the most popular programs in Atari public domain, Pro*Term is packed with professional-level features including Sprint and MCI invisible-code autodialing and multi disk-based directories. It's also the second-largest program ever published in **Antic**. There are three BASIC listings and you'll need an Atari with 48K memory plus a disk drive.*

I've had my Atari 800 for two years now, and have been eating, drinking, and breathing Atari since day one. When I first purchased my 1030 modem I really was disappointed by the lack of downloading capabilities and documentation. I immediately tried taking the 1030 back to where I bought it. They refused. Boy, am I glad now that they did!

Atari users took over where Atari left off..I got hold of a 1030 handler and immediately set out to write Term1030. When finished, I gave it to every BBS in my area and, to my surprise, it wasn't long before Term1030 was across the country. At first, XMODEM for a 1030 was a luxury, but as time went on I was bombarded with requests for more features.

Pro*Term was written to satisfy those requests. And now I'm working on a program patch that will let you use Pro*Term with *other popular modems*. If all goes well, you'll see this enhancement in **Antic** soon.

### LOADING & RUNNING

There are three programs. All are written in BASIC. Listing 1 is the main program, PROTERM.BAS. Listing 2, PROMAKE.BAS, when RUN will create a binary file called AUTORUN.SYS which, when booted, will install a 1030 device handler and then RUN PROTERM.BAS. (So make sure PROTERM.BAS is on the same disk and is accurately named.) Listing 3, MENUMAKE.BAS, when RUN creates a text file, called BBSMENU.ADM with a few BBS telephone numbers to get you started.

Type in all three listings, check them with TYPO II and SAVE backup copies. To create your autoboot telecommunications disk, store a SAVEd copy of PROTERM.BAS. Then RUN PROMAKE.BAS to make the AUTORUN.SYS, and MENUMAKE .BAS to make the telephone directory file. Now, turn on your 1030, boot your disk with BASIC, and away you go.

### THE PROGRAM

The first thing Pro*Term does is pull up a directory of BBS numbers created by MENUMAKE.BAS, and display them on the screen with index letters. Just type the letter next to the number and Pro*Term does the rest.

Press SELECT to go to the Function Menu—the control center of Pro*Term. Before you begin choosing items, be aware that all functions can be executed from anywhere in the program by holding down [OPTION] while typing the appropriate letter. From the Function Menu, [OPTION] does not need to be pressed.

In general, [SELECT] will always return you to the function menu.

### AUTODIAL

Besides the usual 1030 tone dialing, Pro*Term has some very advanced one-touch dialing capabilities. [OPTION] [B] will allow you to create your own autodial menu that contains your Sprint or MCI numbers, BBS names and numbers, and translation required for each system.

Once you've created your menu containing as many as 26 BBS systems, it can be saved on your Pro*Term disk. If you call your file BBSMENU, it will automatically load in when you boot Pro*Term. Use the menu editor's L command to load in other BBS menus. You can make as many menu files as your disk will hold.

If the number you want to dial is not on your menu, [OPTION] [M] will let you manually enter a number to

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be dialed. [A] [/] will re-dial the last number called.

When using a long distance phone company where a delay is needed between numbers, every comma [,] entered will give a two second delay.

Once you've entered your Sprint or MCI codes, Pro*Term will keep them a secret. Use [OPTION] [L] (not described on any menu) to toggle the Sprint/MCI long distance dialing selection on and off. When using this selection, Pro*Term dials your long distance codes invisibly. (Most long distance phone services require tone dialing.)

When your menu is displayed, you just type the letter next to the system name. Pro*Term will then dial that system. If no connection is made, the number will be re-dialed, typing the [ESC] key will also re-dial the number. Pro*Term will continue to re-dial the number until any other key is pressed to abort dialing and return you to the menu.

Sorry, Atari 835 modems are not capable of tone dialing. Use [OPTION] [O] to set for pulse dialing.

## TIMER/CLOCK

The Timer/Clock defaults to auto mode and is set to 00:00:00. Once you're connected online the timer will start counting until you hang up by using [OPTION] [H]. NOTE: Pro*Term does not automatically hang up. When leaving a BBS, be sure and use [OPTION] [H].

Setting the timer by [OPTION] [R] to anything but 00:00:00 will put the timer in clock mode, it will then stay on and keep the time of day.

## UNLIMITED CAPTURE

Pro*Term is equipped with an unlimited capture buffer, meaning you can capture as much information as your disk will hold. For this option to work, you must create a MEM.SAV file before running the program. Use DOS 2 selection N.

Typing the [SPACE] bar toggles MEMSAV on and off from the functions menu. Use option [A] from any other screen. Whenever the MEM.SAV option is on, the number in the lower right corner of the screen tells you how much buffer space is left.

When the buffer is filled, the sending system will be told to stop. Border lines will turn red and memory will be saved to disk. If you did not already specify an output file using [OPTION] [C] you will be prompted for a filename. WARNING: pressing [RETURN] at this filename prompt will clear the buffer and turn off MEMSAV.

## SCREEN DUMP

You just read a message containing an address or phone number you need, but you didn't have MEMSAV on so you frantically grab a pencil. No longer! [OPTION] [S] solves this by dumping the current screen to the printer.

## DOS FUNCTIONS

DOS functions include: Erase, Rename, Format, Copy File. As many as four drives can be accessed. Copy function can be used not only to copy a file, but to print out a text file by specifying P: as your destination. E: (editor) cannot be specified as an output device. If you need to display a file you can use the view file function [OPTION] [V], which will also allow you to print the current page displayed by pressing [OPTION] [P].

## ENTERING FILENAMES

If only a filename is given, the output device will default to D1:. XFILENM and X:FILENAME will translate to DX:FILENAME, where X equals the drive number. The printer, P:, is also accepted as an output device.

## XMODEM TRANSFERS

Pro*Term's XMODEM is fully compatible with FOREM and AMIS bulletin board software as well as with CompuServe.

Downloading and uploading procedures in Pro*Term are similar to AMODEM. You may set up the terminal for a transfer anytime, online or offline using the [OPTION] [D] or [U]. When using these functions, add a filename and the file will be opened to the disk.

The system you're connected to will usually give you an XMODEM READY prompt. Press [START] and the transfer will begin. For a terminal-to-terminal transfer, have the receiver start first. This makes a timing error less likely to occur.

## TERM TO TERM

[OPTION] [A] will allow you to hook up with a friend. But first the two of you must decide who is going to call. One person must sit waiting for the phone to ring, then use the [A] function. The caller simply logs on normally.

## MISCELLANY

[OPTION] [Q] is the only function that cannot be accessed while offline. It allows you to send a file without using XMODEM. The main use is for dumping a pre-written message to another system. Since most bulletin boards are not running at 300 baud in their message editors, a delay rate will be required. You'll be prompted for a filename and then for a delay rate from zero to nine. If you run into trouble by sending too fast you can press any key to abort the transmission.

Most functions can be aborted by pressing the [ESC] key or any key. If the other system does not recognize the abort (which sometimes happens), type a [CONTROL] [X] to abort the other side.

*Matthew Arrington is sysop of the Madrona Marsh BBS, named after a swamp near his home in Torrance, California. The 24-hour number is (213) 212-6414, exclusively for 1030 modems at 300 baud.*

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# LOW COST E-MAIL

## *What electronic mail can do for you!*

by MICHAEL CIRAOLO, **Antic** Associate Editor



It's hard to beat the power of mainframe computers when they're turned to telecommunications. Now that power is within the reach of Atari owners seeking electronic mail services.

Electronic mail is a means of communication, unique and different from courier, postal and telephone communications. With a computer, a modem and the correct sign-on, you can enter a message and have it "mailed" instantly to an electronic mailbox that you know the addressee will check.

Today's electronic mail systems offer online editing capabilities, notification of important messages, lists for multiple distribution (with cc's and blind copies), and so on.

There are two major aspects to "email", as it is often called. With CompuServe's email and many early systems, you can send mail to electronic mailboxes of users in the same system.

It's as if you were accessing a series of telephone answering machines. You can leave messages and letters in the recipient's absence, with the understanding that the correspondence is going to be picked up on a regular basis.

### TELEPHONE TAG

Even if it provides nothing more than an end to telephone tag, email saves money. Business researchers have found that it takes an average of four tries to complete one phone call. Arranging a business meeting with six people around the country would therefore take about 100 phone calls!

Now, large organizations like Manufacturers Hanover Trust, the American Bar Association and the White House each use thousands of electronic mail boxes. These groups have found that email saves time, lowers costs and guarantees that people get messages.

But the early email days are over and now there are more companies around—providing more advanced delivery features. EasyLink and MCI Mail offer the other major aspect of electronic mail, connections to the outside world. With one of these services, you can send telegrams, telexes, mailgrams, first-class business letters, courier delivery in two hours or four hours, overnight letters and so on.

Depending on which system you're using, it can be cheaper to send a document up to 10 pages by email instead of by overnight courier or express mail.

We've looked at three email services suitable for the home market—**CompuServe, EasyLink,** and **MCI Mail**. There are other services which tend to be designed for large organizations. Typically, they have $500 subscription fees or minimum charges. One company to watch, however, is **RCA Mail**, which is planning to start a new home user service. Details were unavailable at press time.

### COMPUSERVE

CompuServe's email system is strictly electronic—it offers no means of printed-copy delivery. However, it is an excellent system for users of CompuServe (CIS), the country's largest network of home computer users.

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CompuServe's newly improved email system is called EasyPlex. It can be accessed within the CIS system by typing GO EASY or GO EASYPLEX. Menu driven, with extensive online help available, EasyPlex lives up to its billing as a friendlier version of the service's older email network.

The new version is typical of a mainframe email approach. You type in the recipient's name and address, or personal identification number. You enter your message and your identification number, then send the message. It's that simple.

In return, when you log onto CompuServe, you'll automatically be told if you have email waiting. You can read, scan or ignore messages, you can store or delete them after reading.

In addition to this basic set-up, you can also upload files from your Atari to someone else's mailbox. This means you can write reports, magazine articles, letters, etc with your favorite word processor and upload the file at your convenience.

You can also choose what level of prompting you want, from first-time user to expert level.

To streamline your emailing, CompuServe also gives you an address book. This is a file you compose and maintain that includes addresses to which you frequently send mail. This saves quite a bit of time and typing, since you only need specify an address book name or number, and have the entire name and PPN entered onto you electronic letter.

The cost for all of this? It is included in the basic CompuServe rates explained elsewhere in this issue. There is no surcharge.

## EASYLINK

EasyLink, a subsidiary of Western Union, initially attracted negative comments for its difficulty of use. The system required you to memorize many commands, as opposed to the menu-driven MCI Mail.

However, now you can choose to use EasyLink entirely through menu prompts, complete with online help. EasyLink is also accompanied by excellent documentation.

EasyLink is billed by time for basic electronic mail, and also charges for various forms of hard-copy delivery. Assuming you are using one of the Metro or Local Access Numbers in EasyLink's network, thus avoiding WATS fees, the cost is 35 cents per minute for 300 baud access and 50 cents per minute for 1200 baud access.

This basic rate covers typing in an electronic letter, mailing it electronicly, reading help screens, reading your mail, and so on.

There are two options in subscribing to EasyLink. An annual fee of $25 covers your mailbox and eliminates monthly minimum requirements. If you are a frequent user, you might choose the monthly minimum option: pay only for the messages you send during the first 30 days. After that, there's a $25 monthly minimum. There's also a $1.50 monthly fee for your mailbox.

Unlike MCI, EasyLink does not let you upload previously written files, so if you tend to panic sitting at a keyboard online while the minutes tick away, don't get EasyLink. In fact, if you even pause about 60 seconds while composing a letter on EasyLink, you'll be interrupted by a message asking you to continue.

## MCI MAIL

MCI Mail is supported by a network of independent contractors who supply marketing support and consumer assistance. This means potential subscribers and existing customers will get at least as much personal attention as they need, reagardless of the size of their business or personal needs.

MCI Mail registers subscribers in groups based on billings. Individuals are those with billings under $50 per month, and there is another set of options for individuals with billings over $50 but less than $250. The Executive 250 and Corporate 1000 options are designed for multiple user accounts on the corporate level. Like most long distance services, the more you spend, the more "free" bonuses you get.

With the individual account, the initial cost of MCI is the yearly $18 mailbox fee. Beyond that, you pay for the specific services you use.

The cost of the basic product, what MCI calls "Instant Mail", is determined by the length of the mail piece. Mail up to 500 characters costs 45 cents. Documents between 501 and 7500 characters in length cost $1, and each additional 7500 characters is another dollar.

## FAST, FASTER . . .

Both companies offer a variety of express deliveries to the outside world. Each provides courier-delivered overnight. Express mail can be sent from anywhere, but there are some restrictions on delivery areas. MCI's hand-delivered four-hour mail can go to 18 cities. EasyLink's two-hour delivery reaches 30 major cities. Overnight courier delivery reaches over 20,000 communities worldwide with MCI, over 25,000 worldwide with EasyLink.

If extreme speed for modest mailings is important, EasyLink is cheaper and faster than MCI Mail. EasyLink offers two-hour delivery by DHL Courier. EasyLink charges $20 for the first five pages of a two-hour letter, which arrives in letter-quality printout. Additional pages are 50 cents each.

This compares with MCI's fastest, 4-hour delivery. MCI charges $30 for the first six pages for four-hour delivery. Additional cost is $1 per three pages.

What do these numbers mean? If you have 12-page contract or article that needs to be somewhere fast, you'll pay $32 for MCI, $23.50 for EasyLink delivery. You can make your own judgements about two-hour versus four-hour delivery.

Overnight delivery for the two companies is similar. EasyLink charges $7.75 for the first five pages and 25 cents for each additional page. MCI charges $8 for the first six pages, $1 for each additional three pages, making it the cheaper service.

In comparing computer-mailed letters, it's important to note an important frill of MCI Mail. For $20 a year, your signature and letterhead can be filed with the company. Your letter-

head and signature are laser printed along with your text. For the $20 annual fee, you have unlimited use of that letterhead and signature.

## MAILGRAM, TELEGRAM

Both services can be used to generate conventional paper mail, delivered in two or three days. One advantage here is cross-country or international speed, because letters are mailed from network centers near the addressee, instead of from the point of origin.

You can also give the service a mailing list if mass mailings are urgent—a trick already discovered by campaigning politicians.

For computer letters, EasyLink charges $1.50 for the first page and 50 cents for each succeeding page. MCI charges $2 for letters up to three pages, $1 for each additional three pages. Thus, a ten-page letter will cost $6 with EasyLink, $5 with MCI.

EasyLink also lets you send Mailgrams, Telegrams and Cablegrams eletronically—something you can't do with MCI Mail.

## TELEX

You can send electronic messages through the Telex network with both services. Billing is by the minute, and in all possible combinations of carriers, MCI is significantly cheaper.

COMPUSERVE INFORMATION SERVICE
P.O. Box 20212
Columbus, OH 43220
(800) 848-8199

EASYLINK
Western Union Telegraph
9229 LBJ Freeway
Dallas, TX 75243
(800) 527-5184

MCI MAIL
2000 M St. NW
Washington, DC 20036
(800) MCI-2255

**BULLETIN BOARD CONSTRUCTION SET**
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with BBCS.

I then turned to TOPDOS since it also offers Ramdisk support. Unfortunately, TOPDOS defines the Ramdisk as D8: and BBCS will not recognize drives higher than D4:.

I discovered a minor bug in both the message base editor and the userlog editor. In the userlog editor in the 'zero flags' sub-menu, option E (time allowed on system) does not function at all.

In the message base editor, loading the editor always gave an error 170 (file not found) followed by the loading of the file. In addition, under the 'word process' function, I specified a file which was too large to handle. The program would abort the function and return to an unreadable garbage-filled sub-menu. Obviously, memory had been modified in some unpredictable ways.

For a program as complex and flexible as BBCS, good documentation is an absolute must. The preliminary documentation desperately needs to be re-written before final release. Hopefully some changes will be made in software and documentation—after all, my review copy was version 1.0.

## ANCHOR OWNERS

If you own an Anchor Mark XII modem, you have a potential problem running any BBS program. Fortunately, there is an easy fix.

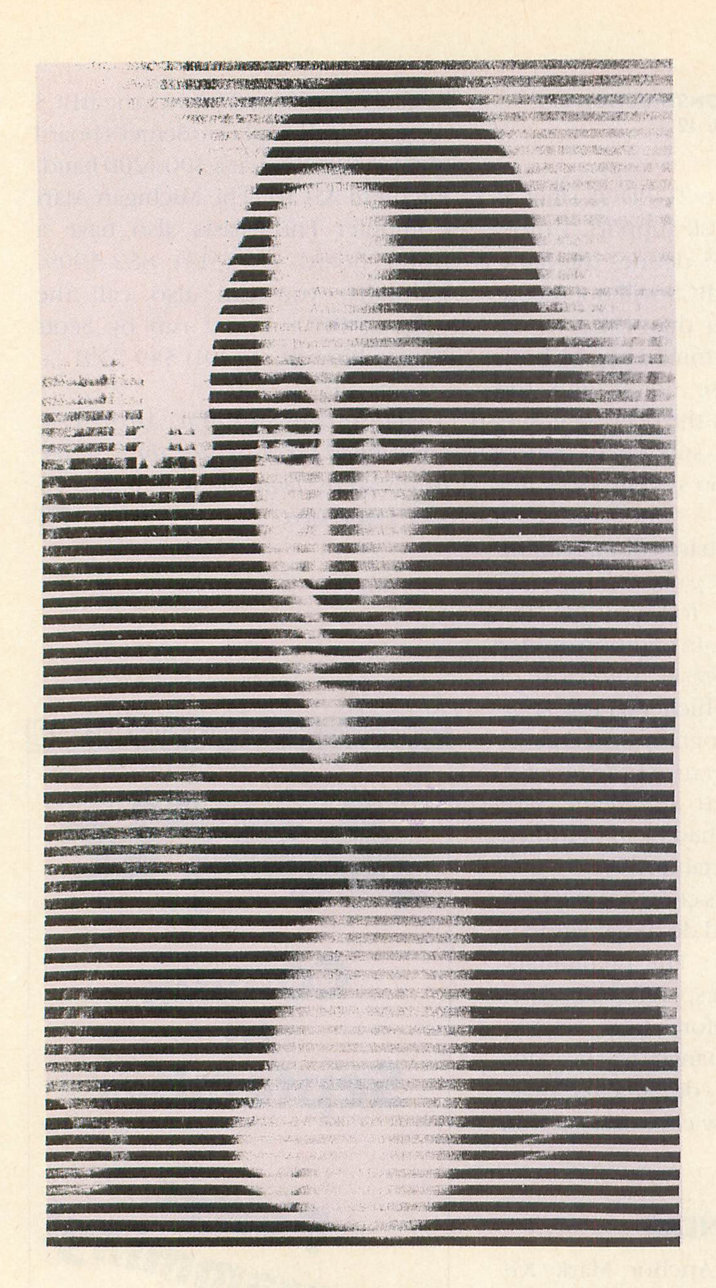
The Anchor Mark XII does not monitor the DTR line (pin 20 on the RS-232 connector). This makes an otherwise fine piece of equipment practically useless for running a BBS. The fix for this is to put a jumper between pin 20 and pin 6 (DSR line) Thanks to the Austin ACE November 1984 newsletter and **Antic** contributor Charles Cherry for identifying this problem and making a workable solution. I've tried it and it works!

## WHERE TO CALL

At this time, there are a few BBCS boards in operation. Sysop Eric Semel has been a beta tester for BBCS for several months and knows the BBCS program well. Call Eric Semel's board at (213) 305-7843, it's 300-1200 baud, log on in ASCII). The Michigan Atari Computer Enthusiasts also have a BBCS board, at (313) 882-5909. Naturally, you can also call the original BBCS board run by Scott Brause himself at (201) 549-7591.

*A regular contributor to **Antic**, Eric has owned his Atari for three years. In his spare time, he is a dentist in San Francisco.*





# Display Master

## *Stretch, squeeze, fold, flop, flip and roll your pictures*

by DAVE OBLAD

*Turn your picture files into silly putty with Display Master. This ACTION! program will stretch, squeeze, fold and otherwise manipulate Graphics 15 pictures, Micro-Painter and Micro Illustrator files. The program requires 48K, a disk drive and the ACTION! cartridge from O.S.S. **Antic Disk** subscribers will find a run-time version of the program which can be used without the ACTION! cartridge—LOAD it by going to DOS 2 without BASIC and using the "L" option on DLMASTER.EXE.*

*A short while ago, Dave Oblad sent **Antic** a solution to "The Eight Queens Problem" (April, 1985). As an afterthought he included Display Master. We booted "Eight Queens," liked it, and will publish it in our next issue. But when we looked at Display Master, it knocked us off our pneumatic computer stools. We think it will do the same for you.*—ANTIC ED.

I was sitting in front of my Atari, which was flipping through a collection of picture files via the Fader program ("Fader II," **Antic**, May 1985) when I began thinking of those sophisticated special effects used on television, where a picture is squashed, stretched, or goes zooming off into infinity. I wondered if it might be possible to do something similar with my own picture files. So I set down to programming and only a few short weeks later I had Display Master.

### THE PROGRAM

Type in the program and save it to disk. Because it uses a good deal of memory, you must compile the program directly from disk. See your ACTION! manual if you're uncertain of this procedure.

When run, Display Master will present you with four options: You can load a new Micro-Painter format picture file, or manipulate a previously loaded picture file, or manipulate a built-in moire pattern, or run a demo program. (We'll discuss Micro Illustrator files later.) For now, choose [D] for the demo program.

A random moire pattern will be drawn on the screen and Display Master will go through its paces. Any time you want to stop, press any keys and you'll return to the option menu.

### PICTURE MANIPULATION

Press [P] to load a Micro-Painter file, and you will be asked to place a disk with your pictures in drive 1. These files must be 62 sectors with an extension of .MIC or .PIC. Press [RETURN] when the disk is in the drive and you will see a directory of the files. Type in the device and filename, in the form D:FILENAME.?IC, press [RETURN] and you will arrive at the programming screen.

(If you don't have Micro-Painter files, choose [M] to manipulate a moire screen.)

The programming screen is where you choose your sequence of display manipulation "steps." Display Master

offers you 10 manipulation choices and you can program a sequence of up to 250 steps. The choices are:

(1) Restore original picture.

(2) Invert the picture.

(3) Mirror-flip the picture.

(4) Shift picture.

(5) Double-crush the picture.

(6) Fold the picture.

(7) Unfold the picture.

(8) Roll (by interlacing) the picture 50%.

(9) Pause for 2 seconds.

(0) Repeat from first step.

Editing this sequence requires the use of 4 keys on the keyboard. Together they allow you to create a series of steps. Each step, when executed, will store the chosen manipulation for that step and move on to the next. The 4 edit keys are:

[-] Minus key to back up a step.

[+] Plus key to move forward a step.

[*] Asterisk key to delete that step.

[=] Equal key to begin execution.

To install a new step simply select an option from 0 to 9 and type that key. The chosen manipulation will be inserted at the current step number. A small step window is displayed with the current step pointed to by a "greater than" symbol [>].

For example, type the following sequence:

3939292988670

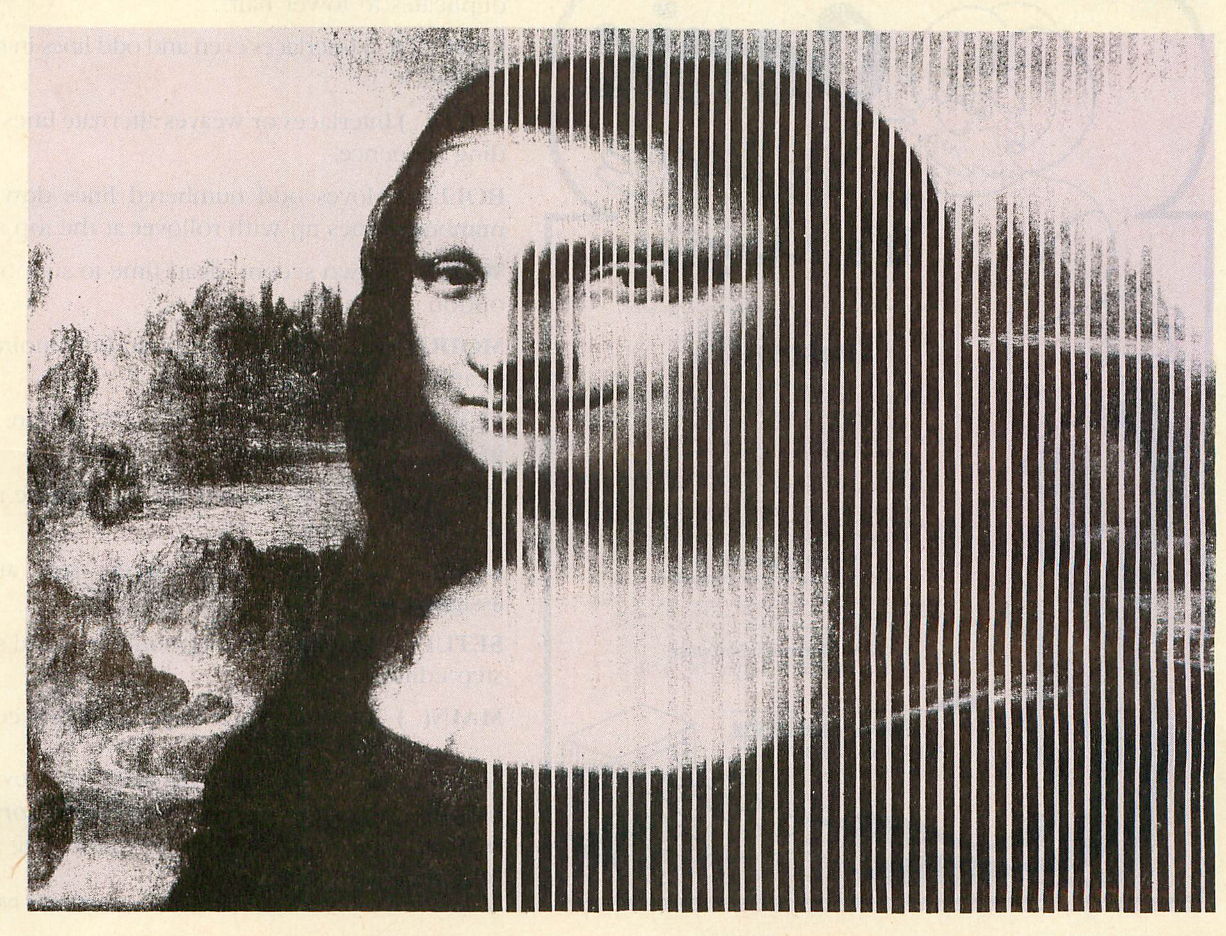
The pointer should now be pointing to step 14. Press the equal key [=] then [START] and the picture will be loaded into memory then displayed with an ACTION! version of Fader. Your new sequence will then begin. To halt the manipulations, press [START] until the first option menu appears again. From here you can load another picture or return to the editing screen to change the sequence on the currently loaded picture

## MICRO ILLUSTRATOR

If you don't have Micro-Painter, you can save Micro Illustrator files (the software that comes with KoalaPad, Atari Touch Tablet, etc.) by pressing [INSERT] while in Micro Illustrator. This will save your picture in a 62 sector, uncompacted file called PICTURE.

Unfortunately, the last four bytes of Micro-Painter files contain color register values which will not be saved with this process. To add color to uncompressed Micro Illustrator files, RUN the BASIC program below after placing your color values in the variables in line 10, and your picture filename in line 20.

continued on next page



```
10 K712=66:K708=30:K709=148:K7
10=196
20 OPEN #1,9,0,"D:PICTURE.PIC"
30 PUT #1,K712:PUT #1,K708:PUT
 #1,K709:PUT #1,K710
40 CLOSE #1
```

## ABOUT THE PROGRAM

Display Master gets most of its effects by juggling the display list for Graphics 15 (or 7+) mode. Each of the 192 display lines are set up with a Load Scan Counter with NNNN Address instruction. The effects are then produced by swapping these byte instructions.

To expedite the swaps, a duplicate set of addresses is maintained in the card array **DL(192)**. Juggling the array and transferring the results to the real display list allows for some fast and spectacular displays to be produced. The original addresses of the display list are saved in the card array **SL(192)** for fast restoration of **DL(192)**.

Some manipulations require direct access of the screen memory. For this I defined the memory location of byte array **RAM(8000)** to overlay the screen memory, thus giving direct access to the display data. Byte array **ORG(8000)** contains the original picture data for fast restoration of the screen.

One other point that should be mentioned involves mirror-flipping the display. Simply reversing the bit order in a displayed byte and swapping byte positions on a line doesn't quite hack it. Remember, the half-nibbles in a given byte define a pixel's color, and reversing the whole byte can really foul up an original pixel's color.

The solution was to create a lookup table that uses the original byte value as an index into the table, where the corrected pixel mirror image is stored. This also speeds reversing the bit order for a given byte. The table is created near the end of the **FIND( )** procedure and is declared as byte array **REV(256)**.

## PROCEDURES USED

**FIND( )** Locates and allocates memory work areas and makes the reverse table.

**MAKE( )** Makes the display list for Graphics Mode 7.5.

**SHOW( )** Transfers the address list from DL( ) array to the real display list.

**RESTORE( )** Restores the original screen RAM and display list addresses.

**FADE( )** Brings the picture to the screen roughly like the Fader program.

**REVERSE( )** Flips the picture upside down by reversing the display list.

**MIRROR( )** Swaps the pixel positions from each side of the screen.

**SHIFT( )** Wraps the picture around so that the center becomes the edges.

**DOUBLE( )** Removes odd numbered display lines and duplicates to lower half.

**UNFOLD( )** Interlaces even and odd lines in reverse order of FOLD( ).

**FOLD( )** Interlaces or weaves alternate lines in an ascending sequence.

**ROLL( )** Moves odd numbered lines down and even numbered lines up with rollover at the top and bottom.

**WAIT( )** A two second dead time to support the pause option.

**MOIRE( )** Generates a semi-random moire pattern in Graphics mode 7.5.

**FETCH( )** Fetches and displays the picture file defined in ARRAY FILE(40).

**GETFILE( )** Prompts user for a file name and displays the disk directory.

**DISPLAY( )** Displays the current step and function assigned to that step.

**SETUP( )** Displays main option menu and supports the step editing.

**MAIN( )** Translates each step into a procedure call.

*Dave Oblad is a "non-degreed" Electronic Design Engineer specializing in microprocessor controlled instrumentation. He's been programming in assembly language for eight years.*

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# SOFTWARE LIBRARY

**Antic** type-in listing section includes every full-length program from this issue. Listings are easier to type and proofread, easy to remove and save in a binder if you wish.



***DISK SUBSCRIBERS:*** You can use all these programs immediately. Just follow the instructions in the accompanying magazine articles.



Antic program listings are typeset on the Star SR-10 Printer, from Star Micronics, Inc., 200 Park Avenue, New York, NY 10166.

# TYPING SPECIAL ATARI CHARACTERS

**Antic** printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
a b c d e f g h i j k l m n o p q r s t u v w x y z
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below. (Squares are drawn around the normal video characters so you can see their positions more accurately, these squares will not appear in listings.)

## NORMAL VIDEO

| FOR THIS | TYPE THIS | FOR THIS | TYPE THIS |
|---|---|---|---|
| | CTRL , | | CTRL T |
| | CTRL A | | CTRL U |
| | CTRL B | | CTRL V |
| | CTRL C | | CTRL W |
| | CTRL D | | CTRL X |
| | CTRL E | | CTRL Y |
| | CTRL F | | CTRL Z |
| | CTRL G | | ESC ESC |
| | CTRL H | | ESC CTRL – |
| | CTRL I | | ESC CTRL = |
| | CTRL J | | ESC CTRL + |
| | CTRL K | | ESC CTRL * |
| | CTRL L | | CTRL . |
| | CTRL M | | CTRL ; |
| | CTRL N | \| | SHIFT = |
| | CTRL O | | ESC SHIFT CLEAR |
| | CTRL P | | |
| | CTRL Q | | |
| | CTRL R | | ESC DELETE |
| | CTRL S | | ESC TAB |

## INVERSE VIDEO

| FOR THIS | TYPE THIS | FOR THIS | TYPE THIS |
|---|---|---|---|
| | CTRL , | | CTRL Y |
| | CTRL A | | CTRL Z |
| | CTRL B | | ESC SHIFT DELETE |
| | CTRL C | | |
| | CTRL D | | |
| | CTRL E | | ESC SHIFT INSERT |
| | CTRL F | | |
| | CTRL G | | |
| | CTRL H | | ESC CTRL TAB |
| | CTRL I | | |
| | CTRL J | | |
| | CTRL K | | ESC SHIFT TAB |
| | CTRL L | | |
| | CTRL M | | |
| | CTRL N | | CTRL . |
| | CTRL O | | CTRL ; |
| | CTRL P | | SHIFT = |
| | CTRL Q | | ESC CTRL 2 |
| | CTRL R | | ESC CTRL DELETE |
| | CTRL S | | |
| | CTRL T | | |
| | CTRL U | | ESC CTRL INSERT |
| | CTRL V | | |
| | CTRL W | | |
| | CTRL X | | |

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key. Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key instead.) Note: In the printed listings, inverse characters will be slightly smaller than the normal ones.

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be *thicker* than the alpha-numerics. Compare the two sets of characters below:

| SPECIAL | | STANDARD | |
|---|---|---|---|
| | CTRL F | | / |
| | CTRL G | | SHIFT + |
| | CTRL N | | SHIFT - |
| | CTRL R | | - |
| | CTRL S | | + |

# HOW TO USE TYPO II

Type in TYPO II and SAVE a copy to disk or cassette.

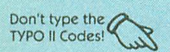
Type GOTO 32000 and follow TYPO II onscreen instructions. If the resulting two-letter line codes are not exactly the same as those in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

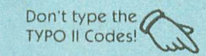
To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME" [RETURN] (Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Owners of the BASIC XL cartridge from O.S.S. type SET 5,0 and SET 12,0 before using TYPO II.




```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
```




```
ET 32120 ? "K":POSITION 11,1:? " TYPO II
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

# ERROR FILE

### *MANEUVER*

*April 1985*

If you get hearts on the title screen, LIST the program to disk or cassette, type NEW, then ENTER and SAVE it.

### *FONT MAKER FOR SG-10*

*March 1985*

The July 1985 issue of ANTIC contains a listing which, when merged with FONT MAKER, makes that program work on the Star SG-10. See the HELP section of that issue for instructions.

### *KWIK DUMP*

*March 1985*

The last number in line 1070 should be 27 instead of zero.

### *KOOKY'S QUEST*

February '85

The following line is missing:

2100 FOR S=32 TO 16 STEP −4: SOUND 0,S,14,10: EA=EA*EA*EA: SOUND 0,0,0,0: EA=1 /\0:NEXT S

### *S.A.M. SOURCE CODE*

*February 1985*

In line 900 of the source code, LDY $01 should be changed to LDY #01.

### *WIDE TEXT*

*January 1985*

Substitute the following lines to print wide Z's.

In assembly:

```
0600        CPY #27*
8    ;8 BYTES TO A
 LETTER
```

In BASIC:

```
CT 20130 DATA 216
,208,213,185,0,22
4
```

### *ADVENT X-5*

November '84

Missing line: 8020 RUN. Also, cassette owners should change the 138 in line 4005 to 130. The TYPO II code for line 1005 is EJ.

### *ADVENTURE ISLAND*

November '84

Line 837 is missing its last item of data, a 4. Also, it will not run with DOS XL.

# ATARI 'TOONS

Article on page 28

## LISTING 1

Don't type the TYPO II Codes!

```
NW 10 REM ATARTOON, LISTING 1
DY 20 REM BY MATT RATCLIFF
FW 30 REM (C) 1985, ANTIC PUBLISHING
CP 40 POKE 106,PEEK(740)
HJ 50 CSN=PEEK(106)-4:POKE 106,CSN
MG 60 GRAPHICS 0:DIM CST$(20):CS0=PEEK(75
   6):CCS=CS0:CST$="":POKE 82,2:POKE 83,3
   9
PV 70 DLL1=PEEK(560):DLH1=PEEK(561):DL1=D
   LL1+256*DLH1:SCR1=PEEK(DL1+4):SCR2=PEE
   K(DL1+5):SCR=SCR1+256*SCR2
GJ 80 POKE 106,PEEK(106)-4
WN 90 GRAPHICS 0:POKE 752,1:POKE 710,0:?
   "↖":POKE 712,5
HC 100 DLL2=PEEK(560):DLH2=PEEK(561):DL2=
   DLL2+256*DLH2:SC1=PEEK(DL2+4):SC2=PEEK
   (DL2+5):SC=SC1+256*SC2
MM 110 DIM A$(40),B$(40),EDIT$(256),FILE$
   (20):LSZ=FRE(0)-2048:DIM BUF$(LSZ):BUF
   $=""
ZH 120 GOSUB 1740:GOTO 300
SA 130 XD=PEEK(XC):YD=PEEK(YC):POKE DL2+C
   4,SCR1:POKE DL2+C5,SCR2:POKE 88,SCR1:P
   OKE 89,SCR2:POKE 756,CS0:RETURN
HA 140 POKE DL2+C4,SC1:POKE DL2+C5,SC2:PO
   KE 88,SC1:POKE 89,SC2:POKE 756,CCS:POS
   ITION XD,YD:GOTO 160
TF 150 POSITION C2,C10:A=USR(FILL,BOTMNU,
   FILEN,C0)
TR 160 POKE 16,112:POKE 53774,112:RETURN
ZG 170 TRAP 200:POKE 702,64:POKE 694,C0:?
    "<Press Y or N> ";:GET #C6,YES
SD 180 IF YES=89 THEN ? "Yes":YES=C1:RETU
   RN
NR 190 IF YES=78 THEN ? "No ":YES=C0:RETU
   RN
HX 200 GOSUB 290:IF PEEK(YC)=22 THEN GOSU
   B 150:? " KEEP TRYING "
QC 210 CLOSE #C6:OPEN #C6,C4,C0,"K:":? "
   BAD KEY ":GOTO 170
PZ 220 TRAP 260:? "(# 1-";MX;")";
NK 230 GET #C6,A:? CHR$(27);CHR$(A):A=A-4
   8
XN 240 IF A<C1 OR A>MX THEN 270
ZI 250 RETURN
LJ 260 ? :CLOSE #C6:OPEN #C6,C4,C0,"K:"
YG 270 GOSUB 290:IF PEEK(YC)=22 THEN GOSU
   B 150:? "KEEP TRYING!"
KT 280 ? "# ERROR, RETRY ";:GOTO 220
CV 290 FOR W=C1 TO 25:SOUND C0,100,C10,C8
   :SOUND C0,140,C10,C8:NEXT W:SOUND C0,C
   0,C0,C0:RETURN
AU 300 GOSUB 140:GOSUB 1560:GOSUB 130
PY 310 CLOSE #C6:OPEN #C6,C4,C0,"K:"
XC 320 POKE 752,C0:POKE 702,64:POKE 694,C
   0:TRAP 310:GOSUB 130:GOSUB 1670:GOSUB
   150
PE 330 SOUND C0,C0,C0,C0:MX=C9:? "  COMMA
   ND>";:GOSUB 220
HN 340 ON A GOTO 350,470,570,610,740,930,
   980,1030,1000
XM 350 GOSUB 150:? " Load ATARI'Toon File
    "
WR 360 IF LEN(BUF$)=C0 THEN 390
RO 370 ? "Erase Cartoon in Memory?":GOSUB
    170:IF  NOT YES THEN 320
ZF 380 ? :BUF$=""
GV 390 GOSUB 1180:IF  NOT FILE THEN 450
BX 400 CLOSE #C1:TRAP 350
VQ 410 OPEN #C1,C4,C0,FILE$:SIZE=LEN(BUF$
   ):INPUT #C1,NUMBER:FULL=C0:IF NUMBER=L
   SZ THEN FULL=C1
TV 420 IF NUMBER+SIZE>LSZ THEN ? "Can't f
   it file into memory!":GOTO 460
NB 430 IO=C1:ADDRESS=AB+SIZE:CMND=CGET:GO
   SUB 1350
LW 440 BUF$(SIZE+NUMBER)=CHR$(PEEK(AB+NUM
   BER+SIZE-C1)):GOTO 320
UD 450 ? "File ";FILE$;" not there!"
VE 460 ? "Press RETURN to continue";:INPU
   T A$:GOTO 320
XB 470 SIZE=LEN(BUF$):IF SIZE=C0 THEN ? "
   Nothing to save.":GOTO 460
WX 480 GOSUB 150:? "Save this ATARI'Toon.
   "
LH 490 GOSUB 1180:IF  NOT FILE OR FILE$="
   C:" THEN 510
JY 500 ? "Overwrite existing file?":GOSUB
    170:IF  NOT YES THEN 320
IZ 510 TRAP 560:CLOSE #C1:OPEN #C1,C8,C0,
   FILE$
WN 520 ? #C1;SIZE
SJ 530 NUMBER=SIZE:ADDRESS=AB:IO=C1:CMND=
   CPUT:GOSUB 1350:CLOSE #C1:IF ERR>127 T
   HEN 550
NI 540 GOTO 320
TF 550 ? "I/O ERROR ";ERR
DN 560 ? CHR$(253);"File error.":GOTO 460
EI 570 SIZE=LEN(BUF$):IF SIZE=C0 THEN 350
   :REM MERGE
LO 580 GOSUB 150:? "Merge an ATARI'Toon."
   :IF FULL THEN 740
JX 590 SZ=LSZ-SIZE:? "Room for ";SZ;" cha
   racters."
QA 600 GOTO 390
UT 610 IF LEN(BUF$)=C0 THEN ? "NOTHING TO
    SHOW":GOSUB 290:GOTO 460
NC 620 GOSUB 150:? " GIVE-A-SHOW "
OC 630 ? "Input speed, 1-256 ";
VI 640 TRAP 610:INPUT SP:IF SP<C1 OR SP>C
   256 THEN 610
ML 650 TRAP 620:? "Press  1  for cursor o
   n,":? " or    2  for cursor off during
    show ?"
YK 660 MX=C2:GOSUB 220:B=A-C1
TC 670 POKE 752,B
IS 680 DELA=C256-SP:? "During Playback pr
   ess SPACE":? "stop & start."
XN 690 ? "Press  START  to exit."
GS 700 ? "Press  RETURN  to see show."
BV 710 TRAP 720:INPUT A$
TN 720 GOSUB 140:A=USR(SHOW,AB,LEN(BUF$)-
   C1,DELA):ALL=PEEK(FLAG):GOSUB 730:GOTO
    320
TW 730 FOR W=C0 TO 400:NEXT W:RETURN
YO 740 IF FULL THEN GOSUB 290:? " BUFFER
   FULL ":GOTO 460
SY 750 GOSUB 140
MX 760 IF LEN(BUF$)=C0 THEN BUF$="↖":ALL=
   C0
FW 770 POKE 752,C0:? "→←":IF  NOT ALL TH
   EN A=USR(SHOW,ADR(BUF$),LEN(BUF$)-C1,C
```

```
   256):ALL=PEEK(FLAG)
TN 780 SZ=LEN(BUF$):A=USR(EDIT,ADR(BUF$)+
   SZ,SZ,LSZ-1)
XT 790 LB=A-ADR(BUF$):A=PEEK(A-C1):BUF$(L
   B,LB)=CHR$(A)
TZ 800 A=PEEK(FLAG):ON A GOTO 810,840,910
   ,920
DV 810 FOR J=15 TO C0 STEP -0.4:SOUND C0,
   60,C10,J:NEXT J
YR 820 IF PEEK(CONSOL)<>C7 THEN SOUND C0,
   240,C10,C10:SOUND C0,250,C10,C10:GOTO
   820
SB 830 SOUND C0,C0,C0,C0:A=USR(SHOW,AB,LE
   N(BUF$)-C1,DELA):ALL=PEEK(FLAG):GOTO 7
   70
JL 840 GOSUB 130:GOSUB 1670
US 850 GOSUB 150:? "Delete Character(s)":
   ? "RETURN only deletes last character.
   "
PO 860 TRAP 860:? "How many chars";:INPUT
    A$:IF A$="" THEN A=C1:YES=C1:GOTO 890
DA 870 A=VAL(A$):IF A>LEN(BUF$) OR A<C1 T
   HEN GOSUB 290:? "# ERROR":? "Press RET
   URN":GET #C6,A:GOTO 850
SM 880 ? "Delete ";A;" character(s)":? "f
   rom BUFFER?":GOSUB 170
HQ 890 IF YES THEN BUF$(LEN(BUF$)-A+C1)="
   ":ALL=C0
PO 900 GOTO 740
NG 910 GOTO 320
IP 920 FULL=C1:GOSUB 730:POKE 764,255:GOT
   O 320
CN 930 ? "Make a new picture."
ZH 940 SIZE=LEN(BUF$):IF SIZE=C0 THEN GOT
   O 740
SU 950 ? "Erase current CARTOON first?":G
   OSUB 170
TD 960 IF  NOT YES THEN 320
TA 970 BUF$="":SZ=LSZ:GOTO 740
MX 980 ? "Disk directory.":GOSUB 1430
NW 990 GOTO 320
CD 1000 ? "Quit the ATARI'Toons program?"
   :GOSUB 170
WR 1010 IF  NOT YES THEN 320
JR 1020 POKE 106,PEEK(106)+C8:GRAPHICS C0
   :CLR :END
GJ 1030 GOSUB 150:? "Custom Character Se
   t"
BC 1040 ? "[1] Enable ATARI Set"
WX 1050 ? "[2] Load & Enable a Custom Set
   ":MX=C2
NH 1060 IF CST$<>"" THEN ? "[3] Re-Enable
    Set ";CST$:MX=C3
WY 1070 GOSUB 220
HA 1080 ON A GOTO 1090,1110,1100
OB 1090 CCS=CSO:? "* ATARI SET *":GOTO 46
   0
XH 1100 CCS=CSN:? "* C-SET ";CST$;" *":GO
   TO 460
OI 1110 GOSUB 150:? "C-SET to load ?":GOS
   UB 1180:CST$="":CCS=CSO
BK 1120 IF  NOT FILE THEN 450
QX 1130 POKE 756,CSN:CLOSE #C5:OPEN #C5,C
   4,C0,FILE$
BQ 1140 ADDRESS=CSN*C256:NUMBER=1024:CMND
   =CGET:IO=C5:GOSUB 1350:POKE 756,CSO
US 1150 IF ERR=C3 THEN 1170
UN 1160 GOSUB 290:? FILE$;" IS  NOT  A VA
   LID C-SET FILE!":GOTO 460
EH 1170 CCS=CSN:CST$=FILE$:GOTO 320
FI 1180 POKE 702,64:POKE 649,C0
EH 1190 ? "Type dev.filename.ext":? "and
   press RETURN."
GQ 1200 ? "Press RETURN for a directory."
IK 1210 ? "Press ESCAPE to abort function
   ."
QS 1220 CNT=C0:FILE$=""
JS 1230 TRAP 1230:CLOSE #C6:OPEN #C6,C4,C
   0,"K:":GET #C6,A
NT 1240 IF A=27 THEN POP :GOTO 320
EW 1250 IF A=155 AND CNT=C0 THEN GOSUB 14
   30:GOSUB 150:GOTO 1180
SU 1260 IF A<>126 THEN 1290
VB 1270 CNT=CNT-C1:IF CNT<C0 THEN 1220
LS 1280 ? CHR$(A);:FILE$=FILE$(C1,CNT):GO
   TO 1230
BT 1290 IF A=155 AND CNT<>C0 THEN 1320
KN 1300 IF A<32 OR A>90 THEN 1230
NQ 1310 CNT=CNT+C1:FILE$(CNT,CNT)=CHR$(A)
   :? CHR$(A);:GOTO 1230
EQ 1320 TRAP 1340:FILE=C0:? :IF FILE$="C:
   " THEN FILE=1:GOTO 1340
WQ 1330 CLOSE #C4:OPEN #C4,C4,C0,FILE$:FI
   LE=C1
JL 1340 CLOSE #C4:RETURN
DB 1350 IO=16*IO
GD 1360 IOCB=832+IO:POKE IOCB+C2,CMND
KQ 1370 ADRHI=INT(ADDRESS/C256):ADRLO=ADD
   RESS-C256*ADRHI
KA 1380 NUMHI=INT(NUMBER/C256):NUMLO=NUMB
   ER-256*NUMHI
JC 1390 POKE IOCB+C4,ADRLO:POKE IOCB+C5,A
   DRHI
TQ 1400 POKE IOCB+C8,NUMLO:POKE IOCB+C9,N
   UMHI
OG 1410 I=USR(ADR("hhh*LVd"),IO):ERR=PEEK
   (IOCB+C3)
AN 1420 RETURN
KL 1430 IF PEEK(C9)=C0 THEN GOSUB 290:? "
   * NO DISK HERE *":RETURN
ZA 1440 GOSUB 150:TRAP 1430:? " DIRECTORY
   ":? "Which Drive";:MX=C4:GOSUB 220:B=A
MR 1450 GOSUB 150:? "D1:*.*":A$(C2,C2)=S
   TR$(B):CLOSE #C5:TRAP 1550:OPEN #C5,C6
   ,C0,A$:I=C0:CNT=C0
EN 1460 INPUT #C5,A$:IF A$(C4,C5)=" F" TH
   EN 1510
SE 1470 I= NOT I:? A$;:IF I THEN ? "|";:G
   OTO 1460
IZ 1480 ? :CNT=CNT+C1:IF CNT<11 THEN 1460
RE 1490 TRAP 1500:? "*MORE* Press RETURN"
   :GET #C6,A
OK 1500 GOSUB 150:CNT=C0:GOTO 1460
YU 1510 IF I THEN ?
JO 1520 ? CHR$(252);A$;CHR$(252):CLOSE #C
   5
FE 1530 TRAP 1540:? "Press  RETURN ";:INP
   UT A$
AV 1540 RETURN
UT 1550 ? :? "DISK I/O ERROR # ";PEEK(195
   ):? "At line ";PEEK(186)+256*PEEK(187)
   :POP :GOTO 460
LT 1560 POKE 88,SCR1:POKE 89,SCR2:? "↖":P
   OSITION C2,C0
IG 1570 ? "  ========= ATARI'Toons =====
   =====  "
FN 1580 ? "     By Matthew J. W. Ratclif
   f     "
JQ 1590 ? "================================
   ========"
UJ 1600 ? " Current Size=      Room Left
   =     "
YO 1610 ? "[1]Load a Show    [2] Save this
    Show  "
SZ 1620 ? "[3]Merge a Show   [4] Play back
    Show  "
VZ 1630 ? "[5]Edit this Show[6] Make NEW
   Show  "
OX 1640 ? "[7]Disk Directory[8] Character
    Set   "
KD 1650 ? "        [9] Quit  ATARI'Toons 
          "
```

continued on next page

```
HE 1660 ? " Press Number 1-9 "
RP 1670 A$=STR$(LEN(BUF$)):X=16:Y=3:GOSUB 1700
SA 1680 SZ=LSZ-LEN(BUF$)
PF 1690 A$=STR$(SZ):X=33:Y=C3
PB 1700 POSITION X,Y:IF LEN(A$)=C5 THEN 1720
GV 1710 FOR I=C1 TO C5-LEN(A$):? CHR$(160);:NEXT I
LN 1720 FOR I=C1 TO LEN(A$):A=ASC(A$(I)):? CHR$(A+128);:NEXT I
AW 1730 RETURN
TE 1740 C0=0:C1=1:C2=2:C3=3:C4=4:C5=5:C6=6:C7=7:C8=8:C9=9:C10=10:CONSOL=53279
NN 1750 AB=ADR(BUF$):BUF$="":SIZE=LEN(BUF$):KEY=764:FULL=C0
FG 1760 C256=256:CPUT=11:CGET=C7:EDIT$(C1)="♥":EDIT$(256)="♥":EDIT$(C2)=EDIT$:EDIT=ADR(EDIT$)
XH 1770 TRAP 1890:CLOSE #C5:FILE$="D:ATARTOON.SYS":IF PEEK(C9)=C0 THEN FILE$="C:":POKE 764,12
SY 1780 OPEN #C5,C4,C0,FILE$
FU 1790 IO=C5:NUMBER=244:ADDRESS=1536:CMND=CGET:GOSUB 1350:IF ERR>127 THEN 1900
LG 1800 IO=C5:NUMBER=209:ADDRESS=EDIT:CMND=CGET:GOSUB 1350:IF ERR>127 THEN 1900
QU 1810 FILL=1735:SHOW=1629:BOTMNU=SCR+400:FILEN=559:CLOSE #C5
RA 1820 IF PEEK(C9)=C0 THEN GOTO 1860
VR 1830 TRAP 1860:OPEN #C5,C4,C0,"D:CHAR.SET"
HJ 1840 IO=C5:ADDRESS=CSN*C256:NUMBER=1024:CMND=CGET:GOSUB 1350:IF ERR<>C3 THEN 1860
PN 1850 CST$="D:CHAR.SET":CCS=CSN:GOTO 1870
YD 1860 CST$="":CCS=CSO
MM 1870 CLOSE #C5:DELA=128:FLAG=1024:POKE FLAG,C0:ALL=C0:XC=85:YC=84:XD=C2:YD=C0
BN 1880 RETURN
XX 1890 ERR=PEEK(195)
IU 1900 POKE 106,PEEK(106)+C8:GRAPHICS C0:? "CARTOON System File Load error # ";ERR
```

## LISTING 2

```
HF 10 REM ATARTOON.SYS SYSTEM FILE MAKER, LISTING 2
IG 20 REM BY MATTHEW RATCLIFF
FW 30 REM (c) 1985, ANTIC PUBLISHING
DZ 40 DATA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,0,0,10,11,12,13,14,15
PR 50 DIM D$(90),HEX(22):RESTORE 31000
UL 60 READ LASTLIN,LNLST:RESTORE 40
EE 70 FOR I=0 TO 22:READ A:HEX(I)=A:NEXT I
SW 80 LINE=990:RESTORE 1000:PASS=0:DONE=0
WW 90 GRAPHICS 0:POKE 752,1:? "CHECKING DATA:"
GZ 100 LINE=LINE+10:LN=80:IF LINE=LASTLIN THEN LN=LNLST:DONE=1
TC 110 POSITION 2,4:? "LINE ";LINE
QF 120 READ D$:IF LEN(D$)<>LN THEN 310
XQ 130 DL=PEEK(183)+256*PEEK(184):IF DL<>LINE THEN ? "LINE >>";LINE;" MISSING":END
EV 140 FOR X=1 TO LN-1 STEP 2:D1=ASC(D$(X,X))-48:D2=ASC(D$(X+1,X+1))-48:B=HEX(D1)*16+HEX(D2)
UB 150 SUM=SUM+B:IF SUM>999 THEN SUM=SUM-1000
ET 160 IF PASS THEN PUT #1,B
LZ 170 NEXT X
KX 180 READ CK:IF CK<>SUM THEN 320
RT 190 IF  NOT DONE THEN 100
QI 200 IF PASS THEN 260
XE 210 PASS=PASS+1:TRAP 340:CLOSE #1
ZD 220 ? "DATA GOOD!":DONE=0
PI 230 SUM=0:RESTORE 1000:LINE=990:IF PEEK(9)=0 THEN 280
TH 240 ? "GET ATARI'Toons DISK READY":? "AND PRESS RETURN KEY":INPUT D$
NZ 250 OPEN #1,8,0,"D1:ATARTOON.SYS":POSITION 2,0:? "WRITING DATA    ":GOTO 100
AU 260 CLOSE #1:? "* ALL DONE *":? " NOTE  Be Sure to SAVE this loader"
JO 270 ? "as a backup, just in case!":GOTO 330
QV 280 ? "POSITION ATARI'Toons TAPE JUST PAST":? "END OF THE PROGRAM."
TI 290 ? "PRESS  PLAY & RECORD  BUTTONS.":? "THEN PRESS RETURN KEY":? "TO WRITE DATA."
JZ 300 OPEN #1,8,0,"C:":GOTO 100
IB 310 ? "DATA LENGTH ERROR IN LINE ";LINE:GOTO 330
WE 320 ? "CHECKSUM ERROR IN LINE ";LINE
VQ 330 POKE 752,0:? :END
BQ 340 ? "I/O ERROR ";PEEK(195);" AT LINE ";PEEK(186)+256*PEEK(187):GOTO 330
BZ 1000 DATA 201C06A00091D4202606204806204F06D005203606386020360618608D40068C41068E420660A20B,460
XC 1010 DATA 8E4203A2008E48038E49034C56E4AD4006AC4106AE420660000000201F1E1D1CE6D4D002E6D560A6,993
TB 1020 DATA D2D002C6D3CA86D2A6D3E0FF6068F00AC903F007AA6868CAD0FB606885D56885D46885D36885D268,158
DX 1030 DATA 85D76885D6A000844DB1D4204806202606A4D6F008A260CAD0FD88D0F8ADFC02C9FFF00FA2FF8EFC,989
DK 1040 DATA 02ADFC02C9FFF0F98EFC02A5D7D00DAE1FD0E006D006A9008D000460204F06D0BCA9018D00046068,655
XT 1050 DATA F00AC903F007AA6868CAD0FB606885D56885D46885D36885D26885D76885D6A00091D4204806204F,926
DH 1060 DATA 06D0F66068F00AC903F007AA6868CAD0FB606885D56885D46885D36885D26885D76885D638A5D6E5,783
XF 1070 DATA D285D2A5D7E5D385D3ADFC02C9FFF01AA260A90079D4203A90009D48039D49032056E48D4306200006,541
ZX 1080 DATA B07DAE7802E00FD007AD8402D048F0288E0004A901A203D004B064D0C42C0004D00D48BD44062000,468
FE 1090 DATA 06900368D051680ACA10E[illegible]AD8402D008AD4306200006B03FA0A88C01D2A2C88E00D2CAD0FD88D0F5,271
LQ 1100 DATA 8C01D28C00D2AD1FD0C907D004A901D0BAC906D006A9018D000460C905D006A9028D000460C903D0,444
CI 1110 DATA A2A9038D000460A9048D000460,433
BO 31000 DATA 1110,26
```

## LISTING 3

```
XO 10 REM ATARI'TOONS, LISTING 3
IG 20 REM BY MATTHEW RATCLIFF
```

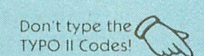
```
BN 30 REM ANTIC PUBLISHING
PS 40 DIM F$(12):F$="D:ROBOT.SHO"
DE 50 GRAPHICS 0:? "Press ■START■ to crea
   te sample cartoon"
HY 60 IF PEEK(53279)<>6 THEN 60
UN 70 IF PEEK(9)=0 THEN F$="C:":? "Prepar
   e tape, press ■RETURN■"
UJ 80 CLOSE #1:OPEN #1,8,0,F$
UA 90 GRAPHICS 0:? "WORKING"
KM 100 TRAP 120
AS 110 READ Q:PUT #1,Q:GOTO 100
QA 120 CLOSE #1:GRAPHICS 0:? "DONE!"
VN 130 DATA 51,48,48,155,125,17,18,18,18,
   18,18,5,155,124,13,32,32,32,13,124,155
   ,124,20,31,31
YW 140 DATA 31,20,124,155,124,32,32,96,31
   ,31,124,155,124,7,14,14,14,6,124,155,2
   6,18,18,18,18
JM 150 DATA 18,3,155,28,28,28,28,28,28,15
   7,157,157,156,156,157,157,156,156,157,
   157,156,156,29,255,29
AE 160 DATA 255,29,255,29,255,29,255,29,2
   55,255,28,255,28,255,28,255,28,255,28,
   255,255,29,255,29,255
PJ 170 DATA 29,255,29,255,29,255,255,28,2
   55,28,255,28,255,28,255,28,255,29,31,3
   1,31,31,31,14,31
PQ 180 DATA 31,31,14,29,29,29,30,30,30,30
   ,30,6,13,13,13,7,155,254,28,254,28,254
   ,28,254,28
UK 190 DATA 254,28,254,254,29,254,29,254,
   29,254,29,254,29,254,254,28,254,28,254
   ,28,254,28,254,28,254
SH 200 DATA 29,31,31,13,31,31,31,13,155,1
   55,155,31,31,7,14,14,14,6,155,28,28,28
   ,28,28,157
OH 210 DATA 157,157,157,157,157,157,157,1
   57,157,157,156,156,156,156,156,156,156
   ,156,156,156,156,157,157,157,157
SZ 220 DATA 156,156,156,156,255,255,255,2
   9,255,255,255,29,255,255,255,29,255,25
   5,255,29,255,255,255,29,255
PB 230 DATA 255,255,254,28,254,28,254,28,
   254,28,254,28,254,157,157,157,156,156,
   156,157,157,157,156,156,156
KD 240 DATA 157,31,31,31,31,31,31,31,31,3
   1,31,29,29,29,46,28,46,28,46,28,66,89,
   69,44,32
KT 250 DATA 66,89,69,46
```

feature-packed telecommunications power

# PRO * TERM: SUPERB NEW MODEM PROGRAM

Article on page 43

## LISTING 1




```
VQ 1 REM PRO*TERM  v. 1.05
TC 2 REM BY MATTHEW ARRINGTON
FD 3 REM (c) 1985, ANTIC PUBLISHING
EW 10 POKE 106,160:GRAPHICS Z:POKE 710,Z:
   POKE 82,Z:POKE 559,Z:POKE 712,Z:GOTO 2
   0000
NE 15 POKE 16,112:POKE 53774,112:RETURN
SG 20 POKE DL+C1,149:POKE 89,149:POKE 106
   ,153
VJ 25 POKE DL+21,152:POKE DL+24,152:? "→←
   ";:SCRN=Z:RETURN
LK 30 POKE DL+C1,156:POKE 89,156:POKE 106
   ,160
ZW 31 POKE DL+21,159:POKE DL+24,159:? "→←
   ";:SCRN=C1:RETURN
WO 35 POKE 752,C1:SAV$(23)=" ":X=USR(MO,D
   L+19,ADR(SAV$),22):X=USR(MO,ADR("N(L◆B
   ♥:: I I IN(LBPLN(LA◣G"),DL+19,22)
FP 36 POKE 661,147:POKE 660,Z:SAV$(23,23)
   =CHR$(PEEK(106)):POKE 703,C4:POKE 106,
   148:? "↖";:WIN=C1:RETURN
GU 37 ? "↖":X=USR(MO,ADR(SAV$),DL+19,21):
   POKE 703,24:POKE 106,ASC(SAV$(23)):WIN
   =Z:RETURN
WI 40 IF T<39424 OR (T=MSG AND MEMSAV) TH
   EN RETURN
FR 42 PR$=" ":PR$(C40)=PR$:PR$(C2)=PR$:PR
   $(C1,C40)=L$:PR$(L+C1)="♥"
NE 45 X=USR(ADR("hh┐Uh┐Th┐Kh┐U■♥▲TP▲■♥I■■
   ■♥■■) ▸■a■┘8■ ┴e■■UHPa◆"),ADR(PR$),T):
   RETURN
BT 50 IF LOCAL OR MSTAT THEN RETURN
WL 54 STATUS #M,X:IF PEEK(747) THEN GET #
   M,X:GOTO 54
FY 55 GOSUB OPM:POKE C7,255:? #M;"←Z";:FO
   R X=C1 TO C100:NEXT X:POKE C7,Z:MSTAT=
   C1:RETURN :REM CLK
VU 60 IF LOCAL THEN RETURN
FJ 65 POKE C7,255:? #M;"←Y";:FOR X=C1 TO
   C100:NEXT X:? #M;"←E";:MSTAT=Z:RETURN
   :REM OPM
VV 70 IF LOCAL THEN RETURN
PG 75 GOSUB OPM:POKE C7,255:? #M;"←M";:PO
   KE C7,Z:RETURN
OK 80 ? "--------------------------------------
   ----------";:RETURN
RZ 90 ? "?";:GOSUB GCHR:X=X=89:IF X THEN
   ? " YES":RETURN
JI 95 ? " NO":RETURN
DV 110 L$="":L=0:POKE 752,C1
ZU 112 ? "_←";:GET #K,X:IF X=155 THEN ? "
   ";:L$(L+C1)="":RETURN
VA 114 IF (X=126 OR X=156) AND  NOT L THE
   N 112
MN 116 IF X=126 THEN ? " ◂◂";:L$(L)="":L=
   L-C1:GOTO 112
NN 118 IF X=156 THEN L$="":FOR T=C1 TO L:
   ? " ◂◂";:NEXT T:L=Z:GOTO 112
FE 119 IF L=IL THEN 112
LU 120 IF STRP=C1 THEN 122
KO 121 X=X-128*(X>127):X=X-32*(X>96):IF (
   X<65 OR X>90) AND (X<42 OR X>59) THEN
   112
VB 122 ? CHR$(X);:L=L+C1:L$(L)=CHR$(X):IF
    L+C1>IL THEN ? "◘";
```

continued on next page

```
NF 124 GOTO 112
SE 125 GET #K,X:X=X-C128*(X>127 AND X<>155):X=X-32*(X>96 AND X<>155):RETURN
RE 130 ROW=PEEK(84):COL=PEEK(85)
JX 140 POP :POP :GOSUB C30:POKE 84,ROW:POKE 85,COL:POKE 752,Z:POKE 77,0
HD 141 POKE 766,Z:? "→←";:BMENU=Z:TRAP SERR:POKE 708,144-119*LOCAL:GOSUB 15
PN 150 GOSUB 30160:IF MEMSAV AND PEEK(C5)=Z THEN GOSUB 750
TS 151 IF MEMSAV AND PEEK(C5)=Z THEN GOSUB 750
BK 155 IF  NOT X THEN 180
JB 156 IF X=255 THEN GOSUB 810:GOTO C100+C40
CV 160 GOSUB 15:GET #K,B:B=B-C128*(B>127):B=B-32*(B>96):POKE 195,Z
YI 161 IF MENU AND (B=155 OR B=27) THEN MENU=Z:GOTO 173
GK 163 IF B<53 AND B>48 THEN B=B-48:GOTO 700
WB 164 IF B=C30+C2 THEN GOSUB 750:GOTO 171
SJ 165 B=B-64:IF B>25 OR B<C1 THEN 175
ZB 170 TRAP 171:GOSUB 180+(C20*B)
MT 171 IF PEEK(195)<>C10+C2 AND PEEK(195)>Z THEN GOTO SERR
OY 172 TRAP SERR:IF MENU AND PMENU=Z THEN GOSUB 20120
TI 173 IF  NOT LOCAL THEN GOTO 140+C20*MENU
UL 175 GOTO 140+9900*(ADM=C1 AND MENU=Z)+(C20*MENU)
ZG 180 IF PEEK(CON)=C5 THEN POKE CON,C7:GOSUB 20120:MENU=C1:GOTO 160
UE 181 IF  NOT XFLAG OR LOCAL THEN GOTO C100+C40
TB 182 POKE CON,C7:L$="Xmodem Start":T=MSG:L=C10+C6:GOSUB C40
XY 183 POKE CON,C8:IF PEEK(CON)<C7 THEN 183
RI 184 FOR T=C1 TO C50:NEXT T:GOTO 1000*XFLAG
PX 200 IF  NOT LOCAL THEN RETURN
VP 202 DUPLEX=C2:GOSUB 500:GOSUB OW:CLOSE #M:LOCAL=Z:OPEN #M,13,0,"T"
VS 205 POKE C7,C256-C1:? #M;"‹J‹L";:POKE C7,Z:?  "    Waiting for callers carrier....":?
GQ 210 ? "▸Type a key to abort.";:FOR T=C1 TO C100*C7:STATUS #M,X
TZ 211 IF PEEK(746)>127 THEN POP :TEMP$="ANSWER MODE":GOTO 10270
YT 215 IF PEEK(764)<255 THEN GET #K,X:T=C100*C7
OS 217 NEXT T:GOSUB 340:GOTO CW
WK 220 IF LOCAL THEN 3300
ZR 225 RETURN
CH 240 IF MEMSAV THEN GOSUB 750
XA 241 GOSUB CLM:GOSUB 35:H=PEEK(BUF+C1)*256+PEEK(BUF)-ADR(CAPT$):IF  NOT H THEN CDEV=Z
RJ 242 IF  NOT CDEV THEN ? "Save Capture buffer:":? :GOSUB 3000:CFIL$=FILE$:CLOSE #C4:OPEN #C4,C8,Z,CFIL$:CDEV=C1
BA 244 IF  NOT H THEN GOSUB CW:GOTO OPM
DD 245 CAPT$(H+C1)="":? "↖":? "▸  Saving Buffer":? #C4;CAPT$;:CLOSE #C4:CDEV=Z:GOSUB CW:GOSUB 790:GOTO OPM
FW 260 GOSUB OW:? "Download File.":?
FF 261 IF XFLAG=C2 THEN ? "Close upload file";:GOSUB YN:? "+◘";:IF  NOT X THEN GOTO CW
KH 263 GOSUB 3000:XFLAG=Z:GOSUB CLM:CLOSE #C5:OPEN #C5,C8,Z,FILE$
RT 265 XFLAG=C1:XF$=FILE$:GOSUB OPM:GOTO CW
```

```
BH 280 GOSUB 670:GOSUB CLM:GOSUB OW:? "Erase file(s)":? :GOSUB 3000:A$=FILE$:CLOSE #D:OPEN #D,C6,Z,FILE$:TRAP 290
OB 281 ? "↖Type 'Y' to delete, <esc> aborts":INPUT #D;BUF$:IF ASC(BUF$)>C40+C2 THEN 290
MA 282 BUF$=BUF$(C3):L$=BUF$(C9,C10+C1):BUF$(C9)=" ":FOR T=C1 TO C9:IF BUF$(T,T)=" " THEN BUF$(T)=".":T=C9
AF 283 NEXT T:IF L$(C1,C1)=" " THEN L$=""
XV 284 BUF$(LEN(BUF$)+C1)=L$:A$(C4)=BUF$:? :? A$;"?";:GOSUB GCHR:IF X=27 THEN 290
UB 285 X=X=89:IF  NOT X THEN 281
EU 286 ? "◘Deleting ->";A$:XIO 33,#C4,Z,Z,A$:GOTO 281
DI 290 POKE 195,Z:TRAP SERR:GOSUB CW:CLOSE #D:GOTO OPM
YD 300 GOSUB OW:? "Formatt Disk:":? :? "Which Drive?  Press: 1 2 3 or 4":GOSUB GCHR:IF X>52 OR X<49 THEN GOTO CW
XY 302 A=X:? "↖Type 'Y' to Format Drive:";CHR$(A):GOSUB GCHR:IF CHR$(X)<>"Y" THEN GOTO CW
IY 304 FILE$="D0:":FILE$(C2,C2)=CHR$(A):GOSUB CLM:CLOSE #D:XIO 254,#D,Z,Z,FILE$:GOSUB OPM:GOTO CW
CI 340 IF MEMSAV THEN GOSUB 750
LI 343 GOSUB 30100:POKE 708,25:T=MSG:GOSUB C40:GOSUB OPM:GOSUB C70:CLOSE #M:LOCAL=C1
LU 344 IF DUPLEX=C2 THEN DUPLEX=C1:GOTO 500
IL 345 IF  NOT LOCAL AND  NOT ADM THEN ?:? :GOSUB 80:? :GOTO 130
ZZ 346 RETURN
BZ 380 GOSUB OW:GOSUB 670:I=Z:H=Z
LV 385 ? "↖Copy From:":? :GOSUB 3000:? "↖Copy To:":? :CFIL$=FILE$:GOSUB 3000:GOSUB CLM:CLOSE #D:CLOSE #C4
TQ 386 IF CFIL$(C1,C2)<>FILE$(C1,C2) THEN ? "↖Copy ";CFIL$;" -->";FILE$:? :? "▸Type a Key to Abort";
ZJ 387 GOSUB 405:T=39504:L=C10+C1:L$=CFIL$:A$="SORCE":GOSUB 400:IF  NOT I THEN OPEN #D,C4,Z,CFIL$:I=C1
RQ 388 CAPT$(CMAX)=" ":A=USR(DR,D,ADR(CAPT$),CMAX-C1):CAPT$(PEEK(C40+C1)*C256+PEEK(C40)+C1)=""
UL 390 GOSUB 405:L$=FILE$:A$="DESTINATION":POKE 708,67:GOSUB 400:IF  NOT H THEN OPEN #C4,C8,Z,FILE$:H=C1
VJ 391 ? #C4;CAPT$;:POKE 708,144-119*LOCAL:IF A<>136 THEN 387
NM 392 CLOSE #D:CLOSE #C4:GOSUB OPM:GOTO CW
VH 400 GOSUB C40:IF FILE$(C1,C2)<>CFIL$(C1,C2) THEN RETURN
TX 402 ? "↖Insert ";A$;" disk, type RETURN.":GET #K,X:? :IF X<>155 THEN 402
ZJ 403 RETURN
MO 405 IF PEEK(764)>C256-C2 THEN RETURN
VQ 406 POP :GET #K,X:GOTO 392
PF 420 L$="L.D.A. ":T=MSG:L=C10+C6:LD=LD=Z:IF LD THEN L$(C8)="ON":GOTO C40
LT 422 L$(C8)="OFF":GOTO C40
NK 440 GOSUB OW:IF  NOT LOCAL THEN RETURN
IF 441 GOSUB 340:OPEN #M,13,Z,"T":LOCAL=Z
WC 442 ? "Enter number: / -Dials last num.":? :? ">";:IL=CW:GOSUB 110:IF L$="" THEN 446
GX 443 IF L$<>"/" THEN N$=L$:TEMP$=N$
DM 444 ? "↖Dialing: Any key aborts."
UX 445 GOSUB 30110
```

```
NO 446 POKE 752,C1:GOSUB CW:GOSUB OPM:CLO
   SE #M:LOCAL=C1:RETURN
CE 460 GOSUB OW:IL=C30+C1:? "Rename File,
    Enter:   Old-FN,New-FN":? :GOSUB 3010:
   GOSUB CLM:CLOSE #D
MF 465 XIO 32,#D,Z,Z,FILE$:GOSUB OPM:GOTO
    CW
PN 480 T=MSG:L=C10+C6:TONE=TONE=Z:L$="Dia
   ling:":IF TONE THEN L$(C9)="TONE":GOTO
    C40
LP 485 L$(C9)="PULSE":GOTO C40
WO 500 T=39446:L=C4:IF DUPLEX=Z THEN DUPL
   EX=C1:L$="HALF":GOTO C40
LE 503 IF DUPLEX=C2 THEN L$="HOST":GOTO C
   40
SK 505 DUPLEX=Z:L$="FULL":GOTO C40
DY 520 IF LOCAL THEN RETURN
FN 521 GOSUB OW:GOSUB 670:? "↖Send Buffer
    (Non XModem)":? :GOSUB 3000
MJ 522 ? "↖Enter Delay Rate:":? :? "0-9 (
   0-NON To 9 Slowest)":GET #K,X:IF X>57
   OR X<48 THEN 522
MO 523 X=X-48:A=X*C5:GOSUB CLM:CLOSE #D:O
   PEN #D,C4,Z,FILE$:GOSUB CW:GOSUB C30:P
   OKE 752,Z
GV 524 CAPT$(CMAX)=" ":H=USR(DR,D,ADR(CAP
   T$),CMAX-C1):CAPT$(PEEK(C40+C1)*C256+P
   EEK(C40)+C1)="":GOSUB OPM
PK 526 FOR T=C1 TO LEN(CAPT$):PUT #M,ASC(
   CAPT$(T))
ZC 528 STATUS #M,X:IF PEEK(747) THEN GET
   #M,X:? CHR$(X);:GOTO 528
RR 530 IF PEEK(764)<C256-C2 THEN GET #C3,
   X:GOTO 534
GC 532 FOR X=C1 TO A+C50*(ASC(CAPT$(T))=1
   55):NEXT X:NEXT T:IF H<>136 THEN GOSUB
    CLM:GOTO 524
IG 534 GOSUB CLM:CLOSE #D:GOSUB OPM:GOTO
   C100+C30
SP 540 GOSUB OW:? "Set timer, (00:00:00)
    ";:IF AUTO THEN ? "Auto Mode":GOTO 54
   5
YP 542 ? "Clock Mode"
RT 545 ? :? ">";:IL=C9:GOSUB 110:IF LEN(L
   $)<C8 OR LEN(L$)>C8 THEN GOTO C30+C7
NJ 547 L$(C3,C3)=":":L$(C6,C6)=":":L=C8:T
   =39518:GOSUB C40
FE 550 AUTO=L$="00:00:00":POKE 1788,AUTO=
   Z:GOTO C30+C7
KI 560 GOSUB CLM:CLOSE #C1:OPEN #C1,C8,Z,
   "P":GOSUB OW:? "Printing screen, type
   any key to abort.";
VX 561 ? #C1;"⇐1●";:FOR T=C1 TO 42:? #C1;
   "-";:NEXT T:? #C1
IZ 562 FOR T=Z TO 23:L$(C40)=" ":X=USR(MO
   ,40000+T*C40,ADR(L$),C40)
XY 565 X=USR(ADR("hh▜Bh▜Zh▜T▜Uh[▛]♥▜N1ZIC
   C◀WCZN)▶XIaS◣Ie▩ I]♥X┴i ┴eNrZ◥┴eT▜TG IFU
   @♥PK◆"),ADR(L$),C40):GOSUB 30130
UF 566 IF PEEK(764)<255 THEN GET #K,X:GOT
   O 568
SE 567 ? #C1;L$:NEXT T:? #C1:FOR T=C1 TO
   42:? #C1;"-";:NEXT T:? #C1
GZ 568 ? #C1;"⇐e":CLOSE #C1:GOSUB OPM:GOT
   O CW
KE 580 L=C7:AMODE=AMODE=Z:IF AMODE THEN L
   $="ATASCII":T=39432:GOTO C40
KJ 585 L$=" Ascii ":T=39432:GOTO C40
QU 600 GOSUB OW:? "Upload file:":?
FC 601 IF XFLAG=C1 THEN ? "Close download
    file";:GOSUB YN:? "↑□";:IF  NOT X THE
   N GOTO CW
LO 602 LAST=Z:XFLAG=Z:GOSUB 3000:GOSUB CL
   M:CLOSE #C5:XF$=FILE$:OPEN #C5,C4,Z,XF
   $:GOSUB 2006:GOSUB CW:GOTO OPM
KU 620 GOTO 3100
RN 660 L=C10+C6:T=MSG:IF  NOT PEEK(BUF+C1
   )*256+PEEK(BUF)-ADR(CAPT$) THEN CB=C1:
   L$="Buffer Empty":GOTO C40
BU 661 CB=Z:F=WIN:IF  NOT WIN THEN GOSUB
   OW
SV 663 ? :? "Type 'Y' to clear capture bu
   ffer.";:GOSUB GCHR:? "↖"
ZB 664 IF X=89 THEN GOSUB 790:L$="Buffer
   Cleared":GOSUB C40:CB=C1
RA 665 IF F THEN RETURN
NW 666 GOTO CW
ZB 670 GOSUB 660:IF  NOT CB THEN POP :IF
   WIN THEN GOTO CW
AF 675 RETURN
DA 700 TRAP SERR:POKE 559,Z:GOSUB CLM:GOS
   UB C20:? "↖":PMENU=Z:POKE 559,34:BUF$=
   "D1:*.*":BUF$(C2,C2)=STR$(B)
OK 710 CLOSE #D:OPEN #D,C6,Z,BUF$:TRAP 73
   0:? :? "▸       Drive ";B;" Files":? :GO
   SUB 80
XV 720 INPUT #D;BUF$:T=BUF$(C1,C1)=" " OR
    BUF$(C1,C1)="*":IF T THEN ? BUF$;" |
   ";
JE 725 IF T THEN INPUT #1;BUF$:IF BUF$(C1
   ,C1)=" " OR BUF$(C1,C1)="*" THEN ? BUF
   $:GOTO 720
LU 730 TRAP SERR:? "↓":CLOSE #D:? ,VAL(BU
   F$);"  Free Sectors.":GOSUB 80:? :? ,"
    Type any key."
LZ 735 GET #K,X:? "↖":GOSUB OPM:GOTO 171
LJ 750 MEMSAV=MEMSAV=Z:T=39460:L=C3:IF  N
   OT MEMSAV THEN 780
GA 760 L$="ON":GOSUB C40:T=MSG:L$=" 0000"
   :X=(PEEK(AMT+1)*256+PEEK(AMT))-(PEEK(B
   UF+1)*256+PEEK(BUF))+48
SE 770 L=C10+C6:L$(C6-LEN(STR$(X)))=STR$(
   X):MEMSAV=Z:GOSUB C40:MEMSAV=C1:RETURN
JN 780 L$="OFF":GOSUB C40:T=MSG:L$=TEMP$:
   L=C10+C6:GOTO C40
PZ 790 A=MEMSAV:IF MEMSAV THEN GOSUB 750
QP 795 CAPT$(CMAX)=" ":X=ADR(CAPT$):H=INT
   (X/256):LB=X-(H*256):POKE BUF+1,H:POKE
    BUF,LB
FI 800 X=(X+CMAX)-48:H=INT(X/256):LB=X-(H
   *256):POKE AMT+C1,H:POKE AMT,LB:IF A T
   HEN 750
ZT 805 RETURN
IY 810 GOSUB 750:GOSUB CLM:GOSUB OW:IF CD
   EV THEN 830
VA 820 ? "Save capture buffer:":? :CDEV=C
   2:GOSUB 3000:CDEV=Z:CFIL$=FILE$:CLOSE
   #C4:OPEN #C4,C8,Z,CFIL$:CDEV=C1
VJ 830 X=PEEK(BUF+C1)*256+PEEK(BUF)-ADR(C
   APT$):CAPT$(X+C1)="":? "↖":? "▸    USA
   USING BUFFER!!":? #C4;CAPT$;
AS 840 GOSUB CW:GOSUB 790:GOSUB 750:GOSUB
    OPM:? #M;"rr";:RETURN
IY 1000 POKE 708,C40+C7:POKE 766,C1:POKE
   752,C1:S=C20+C1:XM$="":BLK=Z:BS=Z:L=C1
   0+C6:H=C1:TRAP 1080
DJ 1005 A$(1,53)="hh▜Lh▜K■┣▟K |▛:IT:IU:IM▶▶■*
    I▶┣■↓ I▀ ▶‾■b┘ Vd▬k IP "▬* IP1■K IF"
OA 1006 A$(54,106)="U◆▶\■b┘▶♥■h┘■i┘ VdSMr
   KH▀♥■"▟B┘▀H┘▀I┘ Vd┴heT▜TGK✧▬▀K |◆"
GP 1010 T=MSG:STATUS #M,X:IF PEEK(747) TH
   EN GET #M,A:GOTO 1010
WT 1015 X=((BS*XMAX+(BLK-C128*BS))/128)+C
   1:L$="BLK:":L$(C5)=STR$(X):? :? "IRece
   iving Blk: ";X;"/";H:?
FK 1017 PUT #M,S:FOR A=C1 TO C4*C100:STAT
   US #M,X
ME 1018 IF PEEK(747)>Z OR PEEK(CON)<C7 TH
   EN POKE CON,C8:GOTO 1020+60*(PEEK(CON)
   <C7)
```

continued on next page

```
MQ 1019 NEXT A:GOTO 1017
EX 1020 POP :GET #M,SOH:SUM=SOH:IF SOH=C4
    OR SOH=C20+C4 THEN 1070
NS 1030 GET #M,B:SUM=SUM+B:GET #M,B:SUM=S
    UM+B:BUF$(129)=""
MS 1031 A=USR(ADR(A$),ADR(BUF$)):SUM=SUM+
    A:IF A>C256 THEN S=21:GOTO 1010
DY 1040 GET #M,B:?
AP 1041 IF B<>ASC(CHR$(SUM)) THEN S=C20+C
    1:L$(LEN(L$)+C1)=" -RETRY":GOSUB C40:P
    OKE 708,67:H=H+C1:GOTO 1010
DJ 1050 XM$(LEN(XM$)+C1)=BUF$:BLK=BLK+C12
    8:S=C6:L$(LEN(L$)+C1)=" -OK":H=C1:GOSU
    B C40
NI 1060 POKE 708,47:IF BLK<XMAX THEN 1010
NQ 1070 IF SOH<>C20+C4 THEN 1110
WY 1080 TRAP SERR:? #M;"⊥⊥";:L$="Xmodem A
    borted":GOSUB C40:POKE 766,Z:? :? "XM
    ODEM ABORTED!":GOSUB CLM:CLOSE #C5
BJ 1090 XFLAG=Z:GOSUB OW:? :? "Erase Part
    ial file";:GOSUB YN:GOSUB CW:IF  NOT X
     THEN 130
ND 1100 XIO 33,#C5,Z,Z,XF$:GOTO 130
JM 1110 POKE 77,Z:BLK=C128:BS=BS+C1:L$="S
    ave - ":L$(C8)=STR$(BS):GOSUB C40:GOSU
    B CLM
NO 1120 IF SOH<>C4 THEN X=LEN(XM$)-C128:?
     #C5;XM$(C1,X);:XM$=XM$(X+C1):GOSUB OP
    M:GOTO 1010
FI 1125 X=LEN(XM$):B=ASC(XM$(X)):IF B>C12
    8 THEN 1140
RV 1130 FOR A=X TO X-B STEP -C1:IF XM$(A,
    A)=CHR$(B) THEN XM$(A)="":NEXT A
BF 1140 ? #C5;XM$;:CLOSE #C5:L$="File Rec
    ieved":GOSUB C40:XFLAG=Z:POKE 766,Z:?
    :GOSUB OPM:? #M;"//";:GOTO 130
EW 2000 POKE 708,249:T=MSG:L=C10+C6:BS=C1
    :H=C1:POKE 752,C1:POKE 766,C1:TRAP 211
    0:GOTO 2010
KF 2005 IF LAST THEN LAST=Z:? #M;"⊣⊣";:L$
    ="Xmodem Complete":GOTO 2120
HW 2006 GOSUB 30150:IF X<>XMAX THEN XM$(X
    +C1)="":LAST=C1
JN 2007 GOSUB OPM:POKE 77,Z:IF XFLAG=Z TH
    EN XFLAG=C2:RETURN
PK 2010 BLK=INT(LEN(XM$)/C128):A=LEN(XM$)
    -(BLK*128):IF  NOT A THEN 2025
LR 2020 X=C128-A:FOR A=LEN(XM$)+C1 TO LEN
    (XM$)+X:XM$(A)=CHR$(X):NEXT A
KQ 2025 A$=XM$(C1,C128):BLK=C1:GOTO 2075
KK 2030 STATUS #M,X:POKE CON,C8:IF PEEK(C
    ON)<C7 THEN 2110
QK 2040 IF PEEK(747)<C1 THEN 2030
XA 2050 GET #M,S
JS 2051 IF S=C20+C4 OR S=C20+C1 THEN POKE
     708,67:L$(LEN(L$)+C1)=" -RETRY":GOSUB
     C40:H=H+C1:GOTO 2075+OW*(S=C20+C4)
ND 2060 POKE 708,249:H=C1:BLK=BLK+C1:BS=B
    S+C1:L$(LEN(L$)+C1)=" -OK":GOSUB C40:I
    F BLK*C128>LEN(XM$) THEN 2005
YT 2070 A$=XM$(BLK*C128-127,BLK*C128)
AN 2075 ? :? "Sending Blk: ";BS;"/";H:?
    :SUM=Z:L$="BLK:":L$(C5)=STR$(BS)
QK 2076 PUT #M,C1:PUT #M,BS:PUT #M,255-AS
    C(CHR$(BS))
SW 2080 FOR A=C1 TO C128:X=ASC(A$(A)):PUT
     #M,X:SUM=SUM+X:? CHR$(X);:NEXT A:?
SB 2090 STATUS #M,X:IF PEEK(747) THEN GET
     #M,X:GOTO 2090
DA 2100 PUT #M,ASC(CHR$(SUM)):GOTO 2030
EL 2110 L$="Xmodem Abort":? #M;"⊥⊥";:? :?
     "Xmodem Aborted!":?
SB 2120 GOSUB C40:GOSUB CLM:CLOSE #C5:XFL
    AG=Z:LAST=Z:POKE 766,Z:? :GOSUB OPM:GO
    TO C100+C30
UB 3000 IL=15:? "Filename: ";
OZ 3010 TRAP SERR:FILE$="D1:":GOSUB 110:I
    F L$="" AND CDEV<C2 THEN POP :GOTO CW
OG 3015 IF CDEV=C2 AND L$="" THEN GOSUB 7
    90:POP :CDEV=Z:GOSUB CW:GOSUB OPM:? #M
    ;"rr";:RETURN
HP 3020 IF L$="P:" THEN FILE$=L$:GOTO 305
    0
UA 3022 IF LEN(L$)<C3 THEN 3040
VA 3025 IF ASC(L$)<53 AND ASC(L$)>48 AND
    L$(C2,C2)=":" THEN FILE$(C2,C2)=L$(C1,
    C1):FILE$(C4)=L$(C3):GOTO 3050
JL 3030 IF L$(C1,C2)="D:" AND LEN(L$)>C2
    THEN FILE$(C4)=L$(C3):GOTO 3050
HE 3035 IF L$(C3,C3)=":" AND ASC(L$(C2))<
    53 AND ASC(L$(C2))>48 THEN FILE$=L$:GO
    TO 3050
AN 3037 IF ASC(L$)<53 AND ASC(L$)>48 THEN
     FILE$(C2,C2)=L$(C1,C1):FILE$(C4)=L$(C
    2):GOTO 3050
LO 3040 FILE$(C4)=L$
QK 3050 T=39504:L=C10+C1:L$=FILE$:GOTO C4
    0
HZ 3100 A$="hh[graphics characters]"
RH 3110 A$(71)="[graphics characters]"
XX 3120 GOSUB OW:? "View - File/Buffer:":
    ? :? "File or Buffer":;:GET #K,X:X=X-12
    8*(X>127):X=X-32*(X>96)
PF 3130 IF X<>66 AND X<>70 THEN GOTO CW
WE 3133 IF X=66 THEN GOSUB CW:GOTO 3180
WL 3135 ? "F";:GOSUB 670
OG 3140 GOSUB 3000:GOSUB CLM:CLOSE #D:OPE
    N #D,C4,Z,FILE$:GOSUB CW:GOSUB C20:? "
    ↖":PMENU=Z
QH 3150 CAPT$(CMAX)=" ":A=USR(DR,D,ADR(CA
    PT$),CMAX-C1):CAPT$(PEEK(41)*256+PEEK(
    C40)+C1)=""
MY 3155 IF LEN(CAPT$)<C1 THEN 3170
FU 3160 L=C1:GOSUB 3200:IF A<>136 THEN 31
    50
KN 3170 CLOSE #D:GOSUB OPM:GOTO 790
UC 3180 X=PEEK(BUF+C1)*256+PEEK(BUF)-ADR(
    CAPT$):IF  NOT X THEN T=MSG:L=C10+C6:L
    $="Buffer empty":GOTO C40
DE 3185 CAPT$(X+C1)="":GOSUB C20:PMENU=Z:
    ? "↖":L=C1:GOSUB 3200:CAPT$(CMAX)=" ":
    RETURN
VO 3200 H=(LEN(CAPT$)-L)+C1:IF H>800 THEN
     H=800
NC 3205 X=USR(ADR(A$),ADR(CAPT$(L)),38288
    ,H,155):B=L:F=H-X:L=L+F+C1
FO 3210 POSITION 0,22:? "<A>bort, <P>rint
     Screen, or RETURN";
ZP 3220 GET #K,X:X=X-128*(X>127):X=X-32*(
    X>96):X=X-64:IF X=C1 THEN POP :RETURN
OX 3230 IF X=C10+C6 THEN CLOSE #K:OPEN #K
    ,C8,Z,"P:":? #K;CAPT$(B,B+F-C1):CLOSE
    #K:OPEN #K,4,0,"K":GOTO 3210
BO 3240 IF L<LEN(CAPT$) THEN ? "↖":GOTO 3
    200
SB 3250 ? "↖":RETURN
VT 3300 POKE 559,Z:STRP=Z:IL=C3:BMENU=Z:P
    MENU=Z:? "↖"
WC 3301 GOSUB C20:? "↖":POSITION 8,C5:? "
    Auto dial Menu Editor":GOSUB 80
GM 3310 POKE 82,C9:? :? "L -Load a BBS Me
    nu":? :? "S -Save a BBS Menu":? :? "A
    -Add # (or create NEW menu)"
VN 3320 ? :? "D -Long distance dialing":?
     :? "X -Exit":POKE 82,0:? :GOSUB 80:?
     :? "  OPTION:";:POKE 559,34:GOSUB 110
NP 3330 IF L$<>"L" THEN 3335
DH 3332 ADM=Z:POP :? "↖":POSITION 0,C9:?
    "Enter filename or type RETURN.":? "(n
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   o extenders)":? :? ">";
LO 3333 IL=C8:GOSUB 110:IF L$="" THEN L$=
   "*"
QG 3334 FILE$="D:":FILE$(C3)=L$:FILE$(LEN
   (FILE$)+C1)=".ADM":GOTO 10000
VI 3335 IF L$="X" THEN ? "K":RETURN
QL 3337 IF L$<>"S" THEN 3351
EE 3338 IF  NOT ADM THEN 3300
EA 3340 ? "(No extenders)":? :GOSUB 3000:
   GOSUB CLM:FILE$(LEN(FILE$)+C1)=".ADM":
   CLOSE #D:OPEN #D,C8,Z,FILE$
MM 3350 ? #D;"ŀŀ";LD$:? #D;ADM$;:CLOSE #D
   :GOSUB OPM:GOTO 3300
HQ 3351 IF L$<>"D" THEN 3360
YZ 3352 ? "K":POSITION 0,C8:? :? "Enter:
   [access number] [delay] [code]":? "Eac
   h comma is a 2 sec. delay."
YW 3354 ? :? "Example: 555-5555,,221121,"
   :? :? ">";:IL=C20:GOSUB 110:IF L$="" T
   HEN 3300
QB 3356 LD$=L$:GOTO 3300
AL 3360 IF L$<>"A" THEN 3300
PB 3380 IL=C30:? "K":POSITION Z,C10:IF AD
   M THEN 3400
TP 3385 ADM$=" ":ADM$(1080)=ADM$:ADM$(C2)
   =ADM$:POKE 752,Z
PQ 3390 ? "Enter a Title:  (40 char's max
   )":? :INPUT L$:? "K":POSITION Z,C10:?
   L$:? :? "Above correct";:GOSUB YN
WN 3395 POKE 752,C1:ADM$(C1,C40)=L$:ADM$(
   C40+C1)="":IF  NOT X THEN 3380
RI 3400 STRP=C1:A$=" ":A$(200)=A$:A$(C2)=
   A$:IF LEN(ADM$)>1079 THEN 3300
NR 3410 ? "K":POSITION Z,C10:? "RETURN EX
   ITS":? :? "Enter BBS name: (16 Char's
   Max)":? :? ">";:IL=16:GOSUB 110
UD 3415 IF L$="" THEN 3300
AI 3420 A$(C2,17)=L$:? "K":POSITION Z,C10
   :? "Enter Telephone Num. (21 Chars Max
   )":? :? ">";:IL=21:GOSUB 110
WD 3430 A$(18,38)=L$:? "K":POSITION Z,C10
   :? "A-ATASCII or N-Ascii";:GOSUB YN:A$
   (39,39)=STR$(X)
CE 3440 ? "K":POSITION Z,C10:? "Name______
   ___>";A$(C2,17):? "Number_______>";:? A
   $(18,38)
ZR 3450 ? "Translation_>";:IF X THEN ? "A
   TASCII"
OE 3550 IF  NOT X THEN ? "Ascii"
WQ 3560 ? :? "Above Correct";:GOSUB YN:IF
    NOT X THEN 3400
UV 3570 ADM$(LEN(ADM$)+C1)=A$(C1,C40):ADM
   =C1:GOTO 3400
VB 10000 IF ADM THEN 10040
BG 10005 GOSUB CLM:TRAP 10020:CLOSE #D:OP
   EN #D,C4,Z,FILE$:TRAP SERR:ADM=C1:GET
   #D,X:IF X=C1 THEN GET #D,X:GOTO 10030
ZR 10020 TRAP SERR:CLOSE #D:ADM=Z:ADM$=""
   :T=39529:L$="No BBS Menu":L=16:GOSUB C
   40:ROW=13:COL=Z:GOSUB C30
KI 10025 ? "K":POSITION Z,C4:? ," Termin
   al Mode ":? "↓▸  Hit select for menu."
TD 10026 ? "▸←OPTION & M to make a call."
   :GOTO 140
YT 10030 INPUT #D;LD$:ADM$(1080)=" ":X=US
   R(DR,D,ADR(ADM$),1080):ADM$(PEEK(41)*C
   256+PEEK(C40)+1)=""
NX 10040 GOSUB OPM:CLOSE #M:LOCAL=C1:GOSU
   B C30:IF BMENU THEN 10072
NE 10045 ? "K":POSITION Z,C3:? ADM$(C1,C4
   0):? :POSITION Z,C6:POKE 752,C1
LB 10050 FOR T=C2 TO LEN(ADM$)/C40 STEP C
   2:X=T*C40-39:? " ";CHR$((T-C1)+64);ADM
   $(X,X+16);"  ";
WV 10060 IF X+39<LEN(ADM$) THEN ? CHR$(T+
   64);ADM$(X+C40,X+56)
FI 10070 NEXT T:? :? :? "▸←Type BBS Lette
   r to Dial.":BMENU=C1
LK 10072 GOSUB 15:POKE CON,C8:IF PEEK(764
   )>254 AND PEEK(CON)=C7 THEN 10072
JL 10073 IF PEEK(CON)=C3 AND PEEK(764)<25
   5 THEN 160
ES 10074 IF PEEK(CON)=C5 THEN POKE CON,C7
   :GOSUB 20120:MENU=C1:GOTO 160
IQ 10078 IF PEEK(764)>254 OR PEEK(CON)<7
   THEN 10072
BB 10080 GOSUB GCHR:I=X-63:IF I>LEN(ADM$)
   /C40 OR I<C1 THEN 10072
XO 10140 GOSUB C20:? "K":POSITION Z,C7:?
   "▸ ESC re-dials number.":? "  Any othe
   r key to ABORT dialing.":PMENU=Z
UX 10150 I=I*C40-39:GOSUB OPM:CLOSE #M:OP
   EN #M,13,Z,"T":LOCAL=Z
JO 10170 N$="":FOR Y=I+17 TO I+38:IF ADM$
   (Y,Y)<>" " THEN N$(LEN(N$)+C1)=ADM$(Y,
   Y):NEXT Y
BI 10175 TEMP$=ADM$(I+C1,I+14):L$=ADM$(I+
   38,I+38):AMODE=L$="1":AMODE=AMODE=Z:GO
   SUB 580
KB 10180 POSITION Z,12:? "Calling ";ADM
   $(I+C1,I+16):? :? "Dialing ";
LD 10190 POSITION C10,14:POKE 752,Z:? "→←
   ";:B=Z:GOSUB 10200:GOTO 10190-150*(B>Z
    AND B<>27)
IV 10200 POKE C7,255:IF TONE THEN ? #M;"K
   O";
YI 10210 ? #M;"K";:N$(LEN(N$)+(LEN(N$)<>
   C40))=CHR$(155)
DC 10215 IF LD THEN T=MSG:L=C10+C6:L$="L.
   D.A. ON":GOSUB C40:? #M;LD$;
TU 10220 A$="hhahhhhh [illegible]
   [illegible]
   [illegible]"
OI 10225 X=USR(ADR(A$),ADR(N$),155):N$(LE
   N(N$))=""
GK 10230 POKE 752,C1:? "→←";:IF X<>155 TH
   EN PUT #M,155
NQ 10240 POKE C7,Z:FOR Y=C1 TO C100*C5:ST
   ATUS #M,A:IF PEEK(764)<>255 THEN GET #
   K,B:Y=C100*C5
CM 10250 IF PEEK(746)>C128 THEN 10270
CI 10255 NEXT Y:GOSUB C70:FOR T=C1 TO C30
   :NEXT T:RETURN
YU 10270 IF AUTO THEN L$="00:00:00":L=C8:
   T=39518:GOSUB C40:POKE 1788,C1
OU 10272 IF WIN THEN GOSUB CW
UA 10275 POP :POKE 752,Z:IF ADM AND DUPLE
   X<C2 AND ESC=C2 THEN ADM$(I,I)=" "
UW 10277 IF LEN(TEMP$)>15 THEN TEMP$(16)=
   ""
BM 10280 T=MSG:L=16:L$=TEMP$:GOSUB C40
RM 10290 GOSUB C30:? "K";:POSITION Z,C7:
   ROW=C3:COL=Z:GOTO C100+C40
OK 20000 READ C1,C2,C3,C4,C5,C6,C7,C8,C9,
   C10,C20,C30,C40,C50,C60,C70,C100,C128,
   C256:M=C2:D=C1:K=C3:CON=53279
WA 20005 YN=C70+C20:MEMSAV=Z:DUPLEX=Z:AMO
   DE=C1:LOCAL=Z:DL=39957
FD 20006 CLM=C50:OPM=C60:TONE=C1:MSG=3952
   9:SERR=30010:GCHR=125
GG 20010 DIM L$(C70+C10),BUF$(129),ADM$(1
   080),N$(C40),SAV$(C20+C3),A$(C100*C2),
   TEMP$(C40),PR$(C40+C1),FILE$(C30+C1)
US 20020 CW=C30+C7:OW=C30+C5:AMT=C3:BUF=C
   1:XMAX=2048:CMAX=4200:DIM CFIL$(15),XM
   $(XMAX),XF$(15),CAPT$(CMAX),LD$(C20)
FT 20030 L$="PeON[illegible]Bh[illegible]||||||||||||||||
   |IB[illegible]B[illegible]|||IN[illegible]BP[illegible]N[illegible]A[illegible]"
QD 20040 DR=ADR("hhh[illegible]\[illegible]B h[illegible]E h[illegible]D h[illegible]I
   h[illegible]H V[illegible]")
TC 20050 X=USR(ADR("hh[illegible]h[illegible]h[illegible]h[illegible]
   [illegible]"),39464,40,85)
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continued on next page

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IU 20060 MO=ADR("h▯¬h▔r▯▯▯h▯r■♥▯v▯t▯▯r▯▯◆")
NZ 20070 X=USR(MO,ADR(L$),39946,LEN(L$)):POKE 560,C10
NE 20110 POKE 195,Z:OPEN #K,C4,Z,"K":LOCAL=C1:? "↖":L=C40:POKE 1788,Z:POKE 708,C20+C5
EJ 20115 L$="Key:A | ATASCII | Dup:FULL | Memsav:OFF ":T=39424:GOSUB C40
AT 20117 L$="D1:              | 00:00:00 |":T=39504:GOSUB C40:X=USR(39680):AUTO=C1:POKE 559,34:GOSUB 790:GOSUB 340
KS 20118 FILES$="D:*.ADM":GOTO 10000
UN 20120 POKE 752,C1:POKE 559,34*PMENU:GOSUB C20:IF PMENU THEN RETURN
HY 20130 ? "↖":? :? "▸  ◢ Pro*Term Functions ◣":? "┌──────────────────────────────────────┐"
SJ 20135 ? "|START  Starts Xmodem Transfer       |":? "|SELECT Displays this Menu             |"
NM 20140 ? "├──────────────────────────────────────┤":? "|OPTION &                            |":? "|","▸▸▸▸←|"
FC 20145 ? "| 1-4 Directories          A -Answer Call  |":? "| B -BBS Menu Editor  C -Capture Save |"
MS 20150 ? "| D -Download               E -Erase File   |":? "| F -Format Disk        H -Hangup Phone |"
SJ 20155 ? "| J -Copy File              M -Make a Call  |":? "| N -New Filename       O -Tone/Pulse    |"
OB 20160 ? "| P -Duplex                 Q -Send Buffer  |":? "| R -Reset Timer        S -Print Screen |"
OV 20165 ? "| T -Translation            U -Upload       |":? "| V -View File          X -Erase Buffer |"
CQ 20170 ? "└──────────────────────────────────────┘":? :? "    SPACE BAR toggles Memsav."
EU 20175 ? "    RETURN exits to terminal screen."
TG 20200 PMENU=C1:POKE 559,34:RETURN
YL 30000 DATA 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60,70,100,128,256
NI 30010 IF WIN THEN GOSUB CW
MM 30012 IF MEMSAV THEN GOSUB 750
TF 30015 POP :POP :POP :POKE 708,87:TRAP SERR:T=MSG:L$="*** ERR: ":X=PEEK(195):L=16:L$(C10)=STR$(X):POKE 195,Z
DH 30020 IF X=170 THEN L$="File not found"
YI 30025 IF X=160 OR X=138 THEN L$="Device Offline"
JU 30030 IF X=140 OR X=139 OR X=150 THEN L$="Modem Error"
EI 30035 IF X=165 THEN L$="Invalid file"
MN 30040 GOSUB C40:GOSUB OPM:GOSUB CLM:CLOSE #D:CLOSE #K:OPEN #K,C4,Z,"K":GOSUB OPM
XC 30050 POKE 708,144-119*LOCAL:GOTO 171
TC 30100 POKE 1788,AUTO=Z:L$=" OFF->LINE":L=16:TEMP$=L$:POKE 708,25:RETURN
GC 30110 FOR T=C1 TO C1:POKE 656,C2:POKE 657,Z:POKE 752,Z:? "→←";
SB 30120 B=Z:GOSUB 10200:FOR S=C1 TO C100*C2:NEXT S:T=B:NEXT T:RETURN
FS 30130 IF  NOT X THEN L$=""
DS 30140 RETURN
XG 30150 GOSUB CLM:XM$(XMAX)=" ":X=USR(DR,C5,ADR(XM$),XMAX):X=PEEK(C40+C1)*C256+PEEK(C40):RETURN
IN 30160 GOSUB OPM:X=USR(1536,DUPLEX,LOCAL,MEMSAV,AMODE):ROW=PEEK(84):COL=PEEK(85):RETURN
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# LISTING 2

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TF 10 REM PRO*TERM HANDLER (CREATES AUTORUN FILE)
BM 20 REM ANTIC PUBLISHING
PJ 30 TRAP 185
KX 40 DIM H$(2),ARRAY$(96),HOLD$(3698),HEX$(23),FILE$(20):HEX$="@ABCDEFGHI#######JKLMNO":CASS=0:Q=1
WY 70 ? "↖PLEASE WAIT....":FOR D=1 TO 500:NEXT D:POKE 559,0
TV 130 RESTORE 2000:FOR LINE=2000 TO 2820 STEP 10:GOSUB 140:NEXT LINE:GOTO 190
ND 140 READ ARRAY$:FOR HNUM=1 TO LEN(ARRAY$) STEP 2:H$=ARRAY$(HNUM,HNUM+1)
AF 150 D=0:FOR I=1 TO 2:D=D*16+ASC(HEX$(ASC(H$(I))-47))-64:NEXT I
LT 155 HOLD$(Q,Q)=CHR$(D):Q=Q+1:NEXT HNUM
AV 160 CL=PEEK(183)+PEEK(184)*256:IF CL<>LINE THEN POKE 559,34:? "LINE ";LINE;" IS MISSING.":END
ZN 180 RETURN
GI 185 POKE 559,34:? "▯ERROR ";PEEK(195);" AT ";PEEK(186)+PEEK(187)*256:END
JU 190 POKE 559,34:? "▯↖PRESS <RETURN> TO CREATE AUTORUN.SYS FILE.":INPUT H$
JC 200 CLOSE #1:OPEN #1,8,0,"D:AUTORUN.SYS":IOCB=848:POKE IOCB+2,11
CN 210 ADDRESS=ADR(HOLD$):ADHI=INT(ADDRESS/256):ADLO=ADDRESS-ADHI*256
IB 220 BYTES=LEN(HOLD$):NUMHI=INT(BYTES/256):NUMLO=BYTES-NUMHI*256
TU 230 POKE IOCB+4,ADLO:POKE IOCB+5,ADHI:POKE IOCB+8,NUMLO:POKE IOCB+9,NUMHI
TE 240 X=USR(ADR("hhh▯LV▯"),16)
UX 250 CLOSE #1:? "↖▯COMPLETED!"
HG 2000 DATA FFFF0006F20668686885DC686885DE686885056885D485D585E76885E6A5DEF0034CAE06A220A90D9D42032056
MU 2010 DATA E4ADEB02D009A5E7F07DA9FF85D460A5E7F008C6E7D004A9008505A220200001A4DCC002D005A220202001A200
AZ 2020 DATA 202001A4E6D004C90AF04FA405F04B889101A204BD699AC910F006DE699A4C8206A9199D699ACABD699AC900D0
SW 2030 DATA E6B101E601D002E602A604E402D01EA603E401D018A9308DC40285E7A220A913202001A95A8D1C02AD1C02D0FB
AG 2040 DATA ADFC02C9FFF01FA9088D1FD0AD1FD0C903F013A230200001A220202001A4DCF005A200202001A9088D1FD0AD1F
IC 2050 DATA D0C907F010C903D00BADFC02C9FFF005A90185D4604C1706000199018EFA06A9079D4203A9009D48039D490320
DD 2060 DATA 56E4A4E6F00160AEFA06E020D05C60A000C97DD006E000D002A00184DFA4E6D00FC90AD004E000F021E000D003
ZH 2070 DATA 2068018400A8A90B9D4203A9009D48039D4903982056E4A400A4DFD00160A20086DFA91D202001A97D60297FA0
AW 2080 DATA 05D98E01F00688C0FFD0F660B9940160A005D99401F00888C0FFD0F6297F60B98E01600D0807180009B7EFD9C
ZO 2090 DATA 0000009BDE9B68AD22028DDD9BAD23028DDE9BA9188D2202A99B8D230260A921A040186DB602CCBE02F0031869
EC 2100 DATA 408D049AADFE06F007A9008DFE06F00FA0018CFE06AD2B02C925B0038C2B02ADFC06D0034CDC9BEEFD06ADFD06
HF 2110 DATA C93CF0034CDC9BA9008DFD06A207BD5E9AC919F006FE5E9A4CDC9BA9109D5E9ACABD5E9AC915F006FE5E9A4CDC
XP 2120 DATA 9BA9109D5E9ACACABD5E9AC919F006FE5E9A4CDC9BA9109D5E9ACABD5E9AC915F0
```

```
   06FE5E9A4CDC9BA9109D5E9A
QY 2130 DATA CACABD5E9AC913F00AC919F018FE
   5E9A4CDC9BAD5E9AC912D0F3A9108D5E9A8D5F
   9A4CDC9BA9109D5E9ACAFE5E
IL 2140 DATA 9A4C0000001DFB1DA41DE51D0C1F
   031E9B1FAB1F4C0A2600200000204B23A0FF8C
   42048C52048C4F04AD500448
SW 2150 DATA C88C5004208922688D5004A508F0
   0DA9108D4204A2048E4F0420B922A900A89900
   04C810FAA9518D42048D5204
VL 2160 DATA 8D4F0420892220F123A2008E4204
   BD1A03F00DC954F009E8E8E8E02090F0B00FA9
   549D1A03A9009D1B03A91D9D
ET 2170 DATA 1C03AEA31DACA41DECE70298EDE8
   02900A8EE702860E8CE802840FA9008D5C0418
   60030C0A27200823AD420410
JJ 2180 DATA 03A09660A52AA8290CD0034C461E
   98099029FE8D4204A9008507204B23206724A9
   598D5204A202208B22902920
FG 2190 DATA F123A0008C420488842 0A08B6020
   0823AD4204F013204F24A9518D520420892220
   F123FC1DF71EA9008D4204A0
YL 2200 DATA 01602008238D5204AE5104D016A6
   07F059C91BF006C99BD026F005A9808D5104A0
   01601040C91BF0F7AD42044A
YG 2210 DATA AD52049004C959D00938E9419004
   C91A9010A9008D5104AD450409018D4504A084
   60AABD6E201869888D4A04A9
BR 2220 DATA 2069008D4B04A9008D5104A0016C
   4A04AD42042908D003A08760AD42044AB0CAAD
   43042930A8F004C920B034AD
YM 2230 DATA 5204C99BD017AD43042940F00CA9
   0D20B91E100160A90AD017A90DD013C010F004
   297F100BC9209004C97D9003
PJ 2240 DATA EAEAEAAD5204AD43042903F01EC9
   03F012A820822420772498290 2F004900C1002
   B008AD520409808D5204202B
VY 2250 DATA 23201923AD0104C93FB0F378AC49
   04AD5204990204F81EF31F208B248D4904EE01
   04AD5004D003205D2458A001
SD 2260 DATA 60200823AD42042904D003A08360
   AD42044A90034C461E58202B2320192378AC47
   04CC4604F0F0B90A268D5204
NL 2270 DATA 208B248D4704CE000458AD43044A
   4A2903F023C903F01CA8AD5204207724982902
   F004900E1002B00AA621A920
ED 2280 DATA 0D45048D4504208224AD43042930
   C9209006AD5204A00160A8208224F015D013A9
   9BD00FD00DF00BC9209004C9
RR 2290 DATA 7D9003AD4C04A00160AD42044A29
   40F005B0034CEC204C461EA092602C0ED21003
   4C000048A97F8D0ED2A5108D
SW 2300 DATA 0ED2A9008D4F046840D89848AC46
   04AD0004F00FC940D00BAD450409108D4504CE
   0004AD0DD2990A26208B248D
AF 2310 DATA 4604AC0004208BF41FEF20248D00
   04AD0FD28D0AD249FF29C00D45048D450468A8
   6840D89848AD0104D00CA9E7
ED 2320 DATA 251085108D0ED24C0820AC4804B9
   02048D0DD2208B248D4804CE0104AD0ED22908
   F0F9D0CDD89848AD5004F007
CO 2330 DATA A9008D5004F0BEAD4404293E8D44
   044C0820D89848AD440449808D44042980F0E6
   AD440429BF8D4404D09A0C00
RX 2340 DATA 45005F6400E0879506B4C0CDD5DC
   000000000009FA9FF034C411E4CCF214C4B22
   4CEC214CA4204CBA208D4C04
HF 2350 DATA A0008C5104C860A9028D510418AD
   4A0469038D4A049003EE4B04A0016029708D52
   04AD4304298F0D52048D4304
ZW 2360 DATA 4CA9204CE320290F8D5204AD4304
   29F00D52048D43044C9D20A901D0BFA9008507
   60AD01048DF020EB21EC02AD
HT 2370 DATA 00048DEB02AD440429B58DEA02AD
   450429F18DED02A0008C4504C860208922AD44
   0429EF8D4404A00160208922
HO 2380 DATA AD44040910D0F0208922AD440409
   20D0E6208922AD440429DF4C1721A204208B22
   AD44040901D0CFA204208B22
QN 2390 DATA AD4404293E4C1721AD440429FB4C
   1721AD44040904D0B3208922 60AD44040AB003
   4C1F23AD420409108D420420
ET 2400 DATA 892290034CEC22EE5004A00160AD
   4204A82901D003A001609829FE09108D420478
   20A323A51009208D0ED28510
RV 2410 DATA 58206724A202208B2290DDAD4204
   09108D4204A202208B2290CE20F123AD420409
   018D4204A08B60AD42040910
KV 2420 DATA 8D4204A202208B22B0F9AD420409
   018D420420F123A00160EC21E722290FC90BD0
   07A0008C5104F00EC90CD00A
XG 2430 DATA A0B4A200206B24A001608D52048D
   5304A8AD44042904F021C00BD017207B232067
   24A9508D5204208922AD5304
GJ 2440 DATA 8D52044C04222094244C0422AD52
   04D005A90A8D5204C90CB0E9A204208B2290E2
   AD44040A90034C411EA9018D
XH 2450 DATA 5104AD52048D5304AD44042904F0
   0DA94F8D5204A204208B224C7822A204208B22
   AD53048D5204AD440409018D
OT 2460 DATA 44044CA920A200AD5004D0FB204F
   24AD0ED22908D0F9A9358D03D38D500478AC49
   04AD5204990204208B248D49
FP 2470 DATA 04EE010458204F24BC0223BD0323
   AA203224202B23AD5004F028AD4E04D0F38D51
   048D5004A93D8D03D3AD4204
FX 2480 DATA 2910F00AAD420429EF8DE822E323
   42043860AE4D049AA08B60A93D8D03D3AD4204
   29EF8D42041860 08003C00B4
IA 2490 DATA 00A8AD450429FE8D450498BAE8E8
   8E4D04602C4404100160AE4D049AA9008D5104
   A08860AD4F04F00160AE4D04
RW 2500 DATA 9AEE4F048D5104AD420429EF8D42
   04A93D8D03D3A080607820A323A9008D00048D
   0104A00599440488 10FA8507
QJ 2510 DATA 8D5104A9C7251009208D0ED28510
   5860C91F0C200C203B205520A9072D32020970
   8D32028D0FD28D0AD2A9788D
BW 2520 DATA 08D2A207A9A09D00D2CA10FAA90B
   8D02D28D06D260207B23A205BD0A029DE723BD
   71239D0A02CA10F1A203BD02
NA 2530 DATA 029DED23BD77239D0202CA10F1AD
   02D309018D02D3AD16028DB51FA9AF8D1602AD
   17028DB61FA91F8DE423DF24
FL 2540 DATA 170260000000000000000000078
   ADB51F8D1602ADB61F8D1702A005B9E723990A
   028810F7A003B9ED23990202
ZR 2550 DATA 8810F7AD02D329FE8D02D3A9C725
   1085108D0ED2A206A9009D01D2CACA10F95860
   A9498D2602A9248D2702A901
OI 2560 DATA 78205CE4A9018D4E045860A9008D
   4E046078205D2458202B23AD0104D0F860A510
   091885108D0ED260A200A003
YH 2570 DATA 203224202B23AD4E04D0F860A200
   4A9001E8D0FA8A4A60AD5204297FAD520460C8
   98C9409002A90060A9008D08
TI 2580 DATA D28D01D28D03D28D05D28D07D28D
   0004A900A2039D5404CA10FAAC5204B9F324F0
   38290F4829030AAABD0B258D
LN 2590 DATA 5804BD0C258D5904684A2906AABD
   03258D5A04BD04258D5B04A200E024DB258E0E
   D408D87820112520842528A9
SV 2600 DATA 408D0ED4600D8001020405060809
   0A0C000000E00B4161419C01BA61E6127832B
   1B30A9008D60048D5E04AE55
QP 2610 DATA 042C540420AB254A4A4A4A20C125
   8D5D04AE57042C560420AB25290F20C125186D
   5D046D5C04293CAE5E043007
KI 2620 DATA 0A0A8D5F04900B4A4A0D5F04AE60
   049D0A26D8A202BD5404187D58049D5404BD55
   047D59049D5504CACA10E9AD
```

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```
IZ 2630 DATA 5E0449FF8D5E04309BEE6004D096
   60A200BC0A268D0AD4984A4A4A4A09108D0AD4
   8D03D298290F09108D0AD4E8
YA 2640 DATA 8D0AD48D03D2D0DC601001E88A29
   7F8DBB25C9409004A97FE900A8B9CA2560E000
   1004E90049FF600000101111
GS 2650 DATA 212132323242434353535464640DC
   25D72664747575858586969696A6A7A7A7B7B7
   B7B8C8C8C8C8C8D8D9D9D9D9
YZ 2660 DATA E9E9E9E9E9E9EAEAFAFAFAFAFAFA
   FAFAFAFA900FA9008DA31DA9328DA41DA94C8D
   A01DA50C8D111DA50D8D121D
FG 2670 DATA A9108D0D1D850CA91D8D0E1D850D
   ADD8FCA21BC9A2F020A23F8A4AA8B96226B004
   4A4A4A4A290F5DCA25290F5D
ZY 2680 DATA CA259DCA25CA10E4A21E8E9B1D4C
   131D001112223333344455566666777788889999
   AAAAABBBBBCCCCCCCDDDDD
RX 2690 DATA DDDDD00000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000
JO 2700 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   0000000000000000000000D8
BL 2710 DATA 26D3270000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000
ZE 2720 DATA 0000000000000000000000000000
   0000000000000000C6548D4503A90520E50A20
   8D2798918E60208D27D05BA9
AJ 2730 DATA FFD051A655E003B04B9002859620
   460DC99BD0034C940AC97EF0E8C9FDF03BC91E
   F0E0C91FF024C9FFF0CFC9FE
GL 2740 DATA F025A696E001D00AC9209021C97A
   B01D900CC92AF008C9309013C93AB00F48208D
   27C98068B00620940A4C3C27
YY 2750 DATA A9FDD0F6A696CABD122C18658A85
   8EBD162C658B858FA000B18E60A20020810AA2
   00A90D9D4A03A06EA92D2071
PE 2760 DATA 0A60A220A9049D4A03A074A92D20
   710A20A427A907859DA22886ADA22686D4272F
   2853A9CA8DC502A9948DC602
XO 2770 DATA 8DC7028DC802A9B88DC402AD3002
   858CAD3102858DA004B18C858AC8B18C858BA2
   FF8EF0029AA003B18CC970F0
MF 2780 DATA 2AAAA970918CA0078A918CA004B1
   8CA008918CA005B18CA009918CA004A947918C
   C8A970E202E302001DFFFF00
QQ 2790 DATA 348534A510293F85108D0ED2A237
   BD39349D4C1DCA10F78EFC02E88EFF02BD7134
   9D841DE8D006EE1D34EE2034
WM 2800 DATA C9FFD0EDA907A21DA04C205CE418
   60A5142900D02EAEFC02E8D028AE841DEE591D
   D003EE5A1D8EFC02E8D017A9
SK 2810 DATA 408DBE02A51009C085108D0ED2A9
   07A2E4A062205CE44C62E460684B63215E7A42
   4A68486D6A686522557F7E5E
KL 2820 DATA 0CFFE202E3020034
```

## LISTING 3

```
SA 10 REM PRO*TERM BBS MENU MAKER
LT 20 REM BY MATTHEW ARRINGTON
FW 30 REM (c) 1985, ANTIC PUBLISHING
VE 40 GRAPHICS 0:? ,"Pro*Term BBS Menu Ma
   ker"
IE 50 ? :? "Press ■START■ to create menu.
   "
HY 60 IF PEEK(53279)<>6 THEN 60
XU 70 DIM A$(379)
IZ 80 A$(1,19)="⊦⊦555-5555,,221121,":REM
   LONG DISTANCE DIALING CODE
HO 90 A$(20,20)=CHR$(155)
UY 100 A$(21,100)="■■■■■■■■■■■Pro*Term■10
   30/835■■■■■■■■■■■■■ Madrona Marsh    1-2
   13-212-6414           1 "
HF 110 A$(101,150)=" Collector          1-21
   3-428-5971           1  Magic Cas"
UE 120 A$(151,200)="tle      1-213-658-7378
         1  A.B.A.C.U.S.     1-4"
ZY 130 A$(201,250)="15-587-8062          1
   CompuServe          1-415-956-428"
MM 140 A$(251,300)="1          0  B.U.G.
        1-208-383-9547          1 "
IQ 150 A$(301,350)=" Atari Express    1-30
   5-961-5221           1  The Asylu"
RN 160 A$(351,379)="m         1-305-937-1880
        1"
FF 170 CLOSE #1:OPEN #1,8,0,"D:BBSMENU.AD
   M":? #1;A$:CLOSE #1
TY 180 GRAPHICS 0:? "COMPLETED!"
```

---

those hidden modem commands

# UNLEASHING THE 1030 MODEM

Article on page 36.

## LISTING 1

Don't type the TYPO II Codes!

```
MF 10 REM MAKEAUTO.BAS
QO 20 REM BY RUSS WETMORE, FOR STAR SYSTE
   MS SOFTWARE, INC.
BN 30 REM ANTIC PUBLISHING
GA 40 ? "ĸPress ■START■ to create":? "AUT
   ORUN.SYS file."
GW 50 IF PEEK(53279)<>6 THEN 50
CG 60 GRAPHICS 2+16:? #6:? #6;"     CREATI
   NG":? #6;"AUTORUN.SYS FILE"
XF 70 DATA 255,255,0,6,30,6,162,9,189,21
YK 80 DATA 6,157,0,3,202,16,247,32,89,228

RK 90 DATA 48,4,24,32,12,29,96,88,1,60
OA 100 DATA 64,0,29,2,0,48,11,224,2,225
AZ 110 DATA 2,0,6
OB 120 CLOSE #1:OPEN #1,8,0,"D:AUTORUN.SY
   S"
MK 130 TRAP 160
KX 140 READ A:? #1;CHR$(A);
NI 150 GOTO 140
IJ 160 CLOSE #1:END
```

## LISTING 2

```
FS 1 REM MINI-1030
DB 2 REM BY RUSS WETMORE, FOR STAR SYSTEM
   S SOFTWARE, INC.
UD 3 REM ANTIC PUBLISHING
UP 4 GOSUB 13
HR 5 IF PEEK(1024)=0 THEN 7
QL 6 GET #5,I:IF I>31 THEN ? CHR$(I);
JX 7 IF PEEK(764)<255 THEN GET #4,I:PUT #
   5,I
QR 8 STATUS #5,I:IF PEEK(747)>127 THEN 5
VS 9 GOTO 10
```

```
TX 10 ? :? CHR$(253);"MODEM DISCONNECTED!
   ":FOR I=1 TO 1000:NEXT I:I=USR(58484)
YE 11 ? "ERROR-";PEEK(195):GOTO 10
JS 12 ? "1030 HANDLER HAS NOT BEEN LOADED
   !":GOTO 10
QJ 13 DIM E$(1),F$(20):GRAPHICS 0:W=710:P
   OKE 709,14:POKE W,0:E$=CHR$(27):? ,"MI
   NI1030":TRAP 12
IC 14 CLOSE #4:CLOSE #5:OPEN #4,4,0,"K:":
   OPEN #5,12,0,"T:":TRAP 11
RD 15 ? :? "PHONE # ";:INPUT F$:IF F$=""
   THEN 15
JR 16 POKE 7,1
OI 17 ? #5;E$;"N":REM IF PULSE
HE 18 ? #5;E$;"O":REM IF TONE
IE 19 ? CHR$(28);"DIALING..";F$:? #5;E$;"
   K";F$
NU 20 STATUS #5,I:IF PEEK(747)<128 THEN 2
   0
AE 21 POKE W,144:? CHR$(125):? "CONNECTED
   !":? :POKE 7,1:? #5;E$;"Y":POKE 7,0:RE
   TURN
```

**stretch, squeeze, flip & roll pictures**

# DISPLAY MASTER

Article on page 48.

## *LISTING 1*

```
; DISPLAY MASTER
; BY DAVE OBLAD
; (c) 1985, ANTIC PUBLISHING
; (NOTE:COMPILE DIRECTLY FROM DISK!)

BYTE A=$680,B=$681,X=$682,Y=$683
BYTE B0=$684,B1=$685,B2=$686,B3=$687
BYTE C1=$688,C2=$689,C3=$68A,C4=$68B
BYTE D1=$68C,D2=$68D,D3=$68E,D4=$68F
BYTE KEY=$D01F,MASK=$D20A,NOW=$685
CARD SCREEN=$690,DLIST=$692
CARD PNTR=$694,LINE=$696,HOLD=$698
CARD R=$69A,L=$69C
BYTE ARRAY RAM,ORG,REV,STP,FILE
CARD ARRAY DL,SL

PROC FIND()
 GRAPHICS(24)
 DLIST=PEEKC(560)
 SCREEN=PEEKC(DLIST+4)
 RAM=SCREEN
 ORG=RAM-8000
 DL=ORG-400
 SL=DL-400
 REV=SL-300
 STP=REV-300
 FILE=STP-40
 LINE=SCREEN
 FOR X=0 TO 191
  DO
   SL(X)=LINE:LINE==+40
  OD
 DLIST=FILE-1400:DLIST=DLIST&$FC00
 X=0
 DO
  B3=X&$03:B3=B3 LSH 6
  B2=X&$0C:B2=B2 LSH 2
  B1=X&$30:B1=B1 RSH 2
  B0=X&$C0:B0=B0 RSH 6
  B3=B3%B2:B3=B3%B1:B3=B3%B0
  REV(X)=B3
  X==+1:IF X=0 THEN EXIT:FI
 OD
 D1=PEEK(712)
 D2=PEEK(708)
 D3=PEEK(709)
 D4=PEEK(710)
RETURN


PROC MAKE()
 GRAPHICS(24)
 FOR X=0 TO 191
  DO
   DL(X)=SL(X)
  OD
 POKE(DLIST,112)
 POKE(DLIST+1,112)
 POKE(DLIST+2,112)
 LINE=DLIST+3
 FOR A=0 TO 191
  DO
   POKE(LINE,$4E)
   POKEC(LINE+1,DL(A))
   LINE==+3
  OD
 POKEC(560,DLIST):POKEC(54274,DLIST)
 POKEC(88,SCREEN)
 POKE(LINE,$41)
 POKEC(LINE+1,DLIST)
RETURN

PROC SHOW()
 LINE=DLIST+3
 FOR A=0 TO 191
  DO
   POKEC(LINE+1,DL(A))
   LINE==+3
  OD
RETURN

PROC RESTORE()
 FOR X=0 TO 191
  DO
   DL(X)=SL(X)
  OD
 FOR PNTR=0 TO 7679
  DO
   RAM(PNTR)=ORG(PNTR)
   IF KEY<7 THEN EXIT:FI
  OD
 SHOW()
RETURN

PROC FADE()
 POKE(712,C1)
 POKE(708,C2)
 POKE(709,C3)
 POKE(710,C4)
 FOR X=0 TO 100
  DO
   PNTR=0
   DO
    PNTR==+RAND(60)
    IF PNTR>7679 THEN EXIT:FI
    RAM(PNTR)=ORG(PNTR)&MASK%RAM(PNTR)
    IF KEY<7 THEN EXIT:FI
   OD
  OD
 RESTORE()
```

continued on next page

```
RETURN

PROC REVERSE()
 L=0
 FOR Y=0 TO 191
  DO
   R=L+39
   FOR X=0 TO 19
    DO
     A=RAM(L):B=RAM(R)
     RAM(L)=REV(B)
     RAM(R)=REV(A)
     L==+1:R==-1
    OD
   L==+20
  OD
RETURN

PROC MIRROR()
 FOR X=0 TO 95
  DO
   HOLD=DL(X)
   DL(X)=DL(191-X)
   DL(191-X)=HOLD
  OD
 SHOW()
RETURN

PROC SHIFT()
 PNTR=0
 FOR Y=0 TO 191
  DO
   FOR X=0 TO 19
    DO
     A=RAM(PNTR)
     RAM(PNTR)=RAM(PNTR+20)
     RAM(PNTR+20)=A
     PNTR==+1
    OD
   PNTR==+20
  OD
RETURN

PROC DOUBLE()
 FOR X=0 TO 95
  DO
   DL(X)=DL(X*2)
  OD
 FOR X=0 TO 95
  DO
   DL(X+96)=DL(X)
  OD
 SHOW()
RETURN

PROC UNFOLD()
 X=192
 DO
  X==-1:A=X
  DO
   HOLD=DL(A)
   DL(A)=DL(A-1)
   DL(A-1)=HOLD
   A==-2
   IF A=0 THEN EXIT:FI
   IF A>250 THEN EXIT:FI
  OD
  SHOW()
  IF X=1 THEN EXIT:FI
  IF KEY<7 THEN EXIT:FI
 OD
RETURN

PROC FOLD()
 X=0
 DO
  A=X
  DO
   HOLD=DL(A)
   DL(A)=DL(A+1)
   DL(A+1)=HOLD
   A==-2
   IF A>250 THEN EXIT:FI
  OD
  SHOW()
  X==+1
  IF X=191 THEN EXIT:FI
  IF KEY<6 THEN EXIT:FI
 OD
RETURN

PROC ROLL()
 FOR X=0 TO 95
  DO
   LINE=DL(191):Y=191
   FOR A=0 TO 94
    DO
     HOLD=DL(Y)
     DL(Y)=DL(Y-2)
     DL(Y-2)=HOLD
     Y==-2
    OD
   HOLD=DL(1)
   DL(1)=DL(0)
   DL(0)=HOLD
   Y=0
   FOR A=0 TO 94
    DO
     HOLD=DL(Y)
     DL(Y)=DL(Y+2)
     DL(Y+2)=HOLD
     Y==+2
    OD
   DL(190)=LINE
   SHOW()
   IF KEY<7 THEN EXIT:FI
  OD
RETURN

PROC WAIT()
 FOR PNTR=0 TO 60000
  DO
   IF KEY<7 THEN EXIT:FI
  OD
RETURN

PROC MOIRE()
 MAKE()
 POKE(712,D1)
 POKE(708,D2)
 POKE(709,D3)
 POKE(710,D4)
 DO:IF KEY>6 THEN EXIT:FI:OD
 COLOR=1
 Y=RAND(9)+2:X=RAND(9)+2
 Y=Y&$FE:X=X&$FE
 FOR PNTR=0 TO 191
  DO
   PLOT(160,96):DRAWTO(0,PNTR)
   PLOT(159,96):DRAWTO(319,PNTR)
   PNTR==+Y
   IF KEY<7 THEN EXIT:FI
  OD
 FOR PNTR=0 TO 319
  DO
   PLOT(160,96):DRAWTO(PNTR,0)
   PLOT(160,95):DRAWTO(PNTR,191)
   PNTR==+X
   IF KEY<7 THEN EXIT:FI
  OD
 FOR PNTR=0 TO 7679
  DO
   ORG(PNTR)=RAM(PNTR)
   IF KEY<7 THEN EXIT:FI
```

```
  OD
RETURN

PROC FETCH()
 MAKE()
 CLOSE(1)
 OPEN(1,FILE,4,0)
 FOR PNTR=0 TO 7679
  DO
   A=GETD(1):ORG(PNTR)=A
  OD
 C1=GETD(1)
 C2=GETD(1)
 C3=GETD(1)
 C4=GETD(1)
 CLOSE(1)
 FADE()
RETURN

PROC GETFILE()
 GRAPHICS(0)
 PRINTE(
"PUT DISK WITH PICTURE FILES IN DRIVE1")
 PRINTE("PUSH RETURN KEY WHEN DONE!")
 INPUTS(FILE)
 CLOSE(2)
 OPEN(2,"D:*.?IC",6,0)
 DO
  INPUTSD(2,FILE)
  PRINTE(FILE)
  IF FILE(2)#$20 THEN EXIT:FI
 OD
 CLOSE(2)
 PRINTE("")
 PRINTE("ENTER 'D:FILENAME.EXT'")
 PRINTE("OR JUST HIT RETURN TO EXIT.")
 PRINT("?"):INPUTS(FILE)
RETURN

PROC DISPLAY()
 POSITION(1,18):PRINT(">")
 POSITION(2,17)
 NOW==-1
 FOR X=1 TO 3
  DO
   PRINT("STEP ")
   PRINTB(NOW)
   PRINT(" IS OPT                    ")
   POSITION(18,16+X)
   IF STP(NOW)>47 AND STP(NOW)<58
      THEN PRINTB(STP(NOW)-48):FI
   IF STP(NOW)=80 OR STP(NOW)=76
      THEN PRINT(FILE):FI
   IF STP(NOW)=77
      THEN PRINT("MOIRE"):FI
   IF STP(NOW)=0
      THEN PRINT("STOP"):FI
   PRINTE("")
   NOW==+1
  OD
 NOW==-2
RETURN

PROC SETUP()
 GRAPHICS(0):POKE(752,1)
 POKE(763,255):POKE(764,255)
 CLOSE(1)
 OPEN(1,"K:",4,0)
 PRINTE
("Display Master, by Dave Oblad")
 PUTE()
 PRINTE ("Antic Magazine, 8/85")
 PUTE() PUTE() PUTE()
 PRINTE
("TO MANIPULATE A PICTURE FILE PUSH 'P'")
 PRINTE
("TO MANIPULATE A LOADED PICT. PUSH 'L'")
 PRINTE
("TO MANIPULATE A MOIRE SCREEN PUSH 'M'")
 PRINTE
("TO SEE A DEMO OF THIS PROGRAM PUSH 'D'")
 PRINT
("PUSH 'P' OR 'L' OR 'M' OR 'D' !")
 POKE(702,64)
 A=GETD(1)
 IF A#76 THEN
   IF A=80 THEN STP(0)=A:GETFILE()
    ELSE FILE(1)=0
   FI
  ELSE STP(0)=A
 FI
 IF FILE(1)#68 THEN STP(0)=77:FI
 IF A#80 AND A#77 AND A#76 THEN
  STP(0)=77
  RETURN
  FI
 GRAPHICS(0):POKE(752,1)
 PRINTE("")
 PRINTE("1 = RESTORE DISPLAY")
 PRINTE("2 = INVERT DISPLAY")
 PRINTE("3 = MIRROR DISPLAY")
 PRINTE("4 = SHIFT DISPLAY")
 PRINTE("5 = DOUBLE DISPLAY")
 PRINTE("6 = FOLD DISPLAY")
 PRINTE("7 = UNFOLD DISPLAY")
 PRINTE("8 = ROLL DISPLAY 50%")
 PRINTE("9 = WAIT 2 SECONDS")
 PRINTE("0 = REPEAT FROM STEP 1")
 PRINTE("")
 PRINTE("- = BACK 1 INSTRUCTION")
 PRINTE("+ = SKIP TO NEXT INSTRUCTION")
 PRINTE("* = DELETE THIS INSTRUCTION")
 PRINTE("= = BEGIN EXECUTION")
 NOW=1
 DO
  DISPLAY()
  POSITION(2,22)
  PRINT("CHOOSE AN OPTION:")
  A=GETD(1):PUT(A)
  IF A=45 AND NOW>1 THEN NOW==-1:FI
  IF A=43 AND NOW<250 THEN NOW==+1:FI
  IF A>47 AND A<58 THEN
   X=253
   DO
    STP(X)=STP(X-1):X==-1
    IF X=NOW THEN STP(X)=A:EXIT:FI
   OD
   NOW==+1
  FI
  IF A=42 THEN X=NOW
   DO
    STP(X)=STP(X+1):X==+1
    IF X=254 THEN EXIT:FI
   OD
  FI
  IF A=61 THEN EXIT:FI
 OD
 CLOSE(1)
 GRAPHICS(0):POKE(752,1):PRINTE("")
 PRINTE
("HOLD DOWN START KEY WHEN TONE SOUNDS")
 PRINTE
("OR WHEN YOU WANT OPTIONS AGAIN.")
 PRINTE
("")
 PRINTE
("  PUSH START KEY NOW TO BEGIN TASKS!")
 DO:IF KEY<7 THEN EXIT:FI:OD
RETURN

PROC MAIN()
 FIND()
```

continued on next page

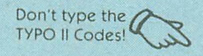
```
FOR X=0 TO 254
 DO
  STP(X)=0
 OD
SCOPY(STP,"88766777666878868740")
DO
 NOW=1:SETUP()
 IF STP(0)#76 THEN
   IF STP(0)=80 THEN FETCH()
   ELSE MOIRE()
   FI
  ELSE
   MAKE()
   POKE(712,C1)
   POKE(708,C2)
   POKE(709,C3)
   POKE(710,C4)
   RESTORE()
 FI
 NOW=1
 DO
  IF STP(NOW)=48 THEN NOW=1:FI
  IF STP(NOW)=49 THEN RESTORE():FI
  IF STP(NOW)=50 THEN MIRROR():FI
  IF STP(NOW)=51 THEN REVERSE():FI
  IF STP(NOW)=52 THEN SHIFT():FI
  IF STP(NOW)=53 THEN DOUBLE():FI
  IF STP(NOW)=54 THEN FOLD():FI
  IF STP(NOW)=55 THEN UNFOLD():FI
  IF STP(NOW)=56 THEN ROLL():FI
  IF STP(NOW)=57 THEN WAIT():FI
  IF STP(NOW)=0 THEN EXIT:FI
  IF KEY<7 THEN EXIT:FI
  NOW==+1
  POKE(77,1)
   OD
   DO
    A=PEEK(20):B=A RSH 5:B=B&1
    IF B=0 THEN SOUND(0,40,10,8):FI
    IF B=1 THEN SOUND(0,80,10,4):FI
    IF KEY<7 THEN EXIT:FI
   OD
   SNDRST()
  OD
RETURN
```

**game of the month**

# VALIANT

Article on page 33

## *LISTING 1*


Don't type the TYPO II Codes!

```
PR 1 REM VALIANT
XP 2 REM BY J. SUTHERLAND
FD 3 REM (c) 1985, ANTIC PUBLISHING
IK 7 GOTO 1000
RO 10 A=USR(1536,ADR(S$)+70*Y+X)
UJ 20 S=STICK(0):IF S=15 THEN 20
TF 30 XD=(S=7)-(S=11)
EM 40 YD=(S=13)-(S=14)
AN 50 IF PEEK(40405+XD+20*YD)=0 THEN X=X+
   XD:Y=Y+YD:SOUND 0,100,10,10:SOUND 0,0,
   0,0:GOTO 10
VF 60 P=PEEK(40405+XD+20*YD):IF P=33 THEN
    10
AW 70 IF P=138 THEN KEY=KEY+1:EX=EX+5:GOS
   UB 1110
QC 80 IF P=11 AND X=0 AND Y=40 AND SW<1 T
   HEN 10
KS 90 IF P=11 AND X=0 AND Y=40 AND SW=1 A
   ND KEY>0 THEN 1470
EN 100 IF P=11 AND KEY THEN GOSUB 1190:GO
   SUB 1110:GOSUB 1150:IF F THEN F=0:GOTO
    1350
GA 110 IF P=131 THEN GOSUB 1110:GP=GP+25:
   EX=EX+10
XX 120 IF P=64 THEN POSITION 5+XD,4+YD:?
   #6;"◪":GOTO 1380
IN 130 IF P=133 THEN SW=1:GOSUB 1110
FC 140 GOSUB 1150:GOTO 10
JX 1000 CLR :GRAPHICS 17
EG 1010 CB=152:POKE 756,CB:ML=1536
ML 1020 A=USR(ADR("h■♥■♥■■♥■■♥■■♥■■♥■■♦"
   ))
GB 1030 DIM T$(71),S$(3710),K$(16),F$(150
   )
HZ 1040 READ A:IF A>-1 THEN POKE ML+K,A:K
   =K+1:GOTO 1040
EA 1050 FOR J=0 TO 103:READ A:POKE CB*256
   +J,A:NEXT J
IO 1060 REM
YR 1070 GOSUB 1300
VE 1080 GRAPHICS 17:K$="■■■■■■■■■■■■■■■■":
   POKE 709,70:POKE 708,138:POKE 710,26:P
   OKE 711,200
SJ 1090 POKE 756,CB:POSITION 12,2:? #6;"(
   :":POSITION 12,4:? #6;"):":POSITION 12
   ,6:? #6;"':":GOSUB 1150
OB 1100 GOTO 1210
TZ 1110 D=XD+20*YD:POKE 40405+D,0
RR 1120 LOC=70*(Y+YD)+X+XD+285:S$(LOC,LOC
   )="♥"
MH 1130 FOR J=100 TO 80 STEP -0.5:SOUND 0
   ,J,10,12:NEXT J:SOUND 0,0,0,0
AN 1140 RETURN
SF 1150 IF KEY THEN POSITION 1,14:? #6;K$
   (1,KEY*2):GOTO 1160
SD 1155 POSITION 1,14:? #6;"
   "
YO 1160 IF SW THEN POSITION 3,16:? #6;"◩"

KW 1170 POSITION 14,2:? #6;ST;"  ":POSITI
   ON 14,4:? #6;EX:POSITION 14,6:? #6;GP;
   "    "
AZ 1180 RETURN
HS 1190 KEY=KEY-1:POKE 40405+XD+20*YD,0:F
   OR J=90 TO 100 STEP 0.5:SOUND 0,J,10,1
   2:NEXT J:SOUND 0,0,0,0
AD 1200 RETURN
QB 1210 X=10:Y=30:ST=100:F=1:A=USR(1536,A
   DR(S$)+70*Y+X):EX=0:GP=0
BY 1220 POSITION 7,20:? #6;"valiant":POSI
   TION 5,16:? #6;"HIT TRIGGER":POSITION
   2,22:? #6;"BY J. SUTHERLAND"
DC 1230 POSITION 0,10:? #6;"■ = KEY♥♥♥■ =
    GOLD":? #6:? #6;"◪ = GHOUL♥◩ = SWORD"

JB 1240 ? #6:? #6;"+ = LOCKED DOOR"
TQ 1250 IF STRIG(0) THEN 1250
UA 1260 POSITION 5,16:? #6;" GOOD LUCK "
KJ 1270 FOR J=-40 TO 40:SOUND 0,ABS(J)+12
   0,10,12:NEXT J:SOUND 0,0,0,0:POSITION
```

```
   0,10:FOR J=1 TO 4
SD 1280 ? #6;"                  ":? #6:N
   EXT J:POSITION 6,16:? #6;"          "
PX 1290 GOTO 10
OA 1300 RESTORE 5690:READ F$,T$:F$(LEN(F$
   )+1)=T$:READ T$:FOR J=1 TO 4:S$(LEN(S$
   )+1)=T$:NEXT J
FH 1310 FOR J=1 TO 44:READ A:S$(LEN(S$)+1
   )="▣▣▣▣":S$(LEN(S$)+1)=F$(A,A+62):S$(L
   EN(S$)+1)="▣▣▣▣":NEXT J
IJ 1320 FOR J=1 TO 4:S$(LEN(S$)+1)=T$:NEX
   T J
EF 1330 S$(440,440)="◥":S$(2589,2589)=" ""

AR 1340 RETURN
DB 1350 RESTORE 5200:S$="":FOR J=1 TO 49:
   READ T$:S$(LEN(S$)+1)=T$:NEXT J
CE 1360 X=3:Y=39
PT 1370 GOTO 10
XD 1380 S1=STICK(0):IF S1<>15 AND S1<>5 T
   HEN POSITION 5+XD,4+YD:? #6;" ":S=S1:G
   OTO 30
AI 1390 SOUND 2,10,10,12:FOR T=1 TO 4:NEX
   T T:SOUND 2,0,0,0
DO 1400 ST=ST-1:GOSUB 1170:IF ST>1 THEN 1
   380
YK 1410 FOR T=1 TO 500:NEXT T:? #6;"↖":PO
   SITION 3,2:? #6;"YOU HAVE BEEN"
NW 1420 FOR J=1 TO 4:FOR K2=-3 TO 3:K=K2
ZD 1430 IF J=4 AND K2=3 THEN K=1
AR 1440 POSITION ABS(K),5:? #6;" D E F E
   A T E D "
NS 1450 SOUND 0,100-(10*J+5*ABS(K)),10,10
   :FOR T=1 TO 7+3*J:NEXT T:NEXT K2:NEXT
   J
DE 1460 SOUND 0,0,0,0:GOTO 1490
FW 1470 ? #6;"↖":POSITION 2,2:? #6;"CONGR
   ATULATIONS"
VG 1480 POSITION 6,4:? #6;"YOU WON"
NF 1490 SCORE=EX+10*ST:POSITION 2,9:? #6;
   "FINAL SCORE: ";SCORE
VI 1500 FOR J=10 TO 20:FOR K=1 TO 9:SOUND
    0,J+K*3,10,12:FOR T=1 TO 4:NEXT T:SOU
   ND 0,0,0,0:NEXT K:NEXT J
VN 1510 FOR T=1 TO 1000:NEXT T:RUN
VZ 4999 REM MACHINE LANGUAGE DATA
ER 5000 DATA 104,104,133,204,104,133,203
DA 5010 DATA 162,0,160,0
YW 5020 DATA 177,203,157,129,157,232
OE 5030 DATA 200,192,9
IZ 5040 DATA 208,245,138,24,105,11,170
AC 5050 DATA 224,180,240,20,234
ZJ 5060 DATA 165,203,24,233,185,144,2
GB 5070 DATA 230,204,165,203,24,105,70
ZJ 5080 DATA 133,203,24,144,214,169,2
PH 5090 DATA 141,213,157,169,0,133,77,96,
   -1
ZV 5100 DATA 0,0,0,0,0,0,0,0
FH 5110 DATA 251,251,251,0,191,191,191,0,
   24,0,60,90,0,24,36,102
UC 5120 DATA 0,15,17,35,69,250,140,248
BT 5130 DATA 248,30,55,51,3,6,12
AC 5140 DATA 0,1,2,4,136,208,96,112,152
LD 5150 DATA 219,90,66,60,24,24,36,102
KV 5160 DATA 224,128,160,174,234,14,8,8
ZP 5170 DATA 224,128,224,46,228,4,4,4
LJ 5180 DATA 224,128,192,138,234,4,10,10
LA 5190 REM DATA 0,6,6,6,6,102,60,0
OY 5191 DATA 224,160,224,16,8,12,22,4
PG 5192 DATA 255,60,60,44,60,60,60,255
OH 5193 DATA 8,28,42,28,42,73,8,0
VI 5200 DATA AAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAA
VL 5210 DATA AAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAA
VO 5220 DATA AAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAA
VR 5230 DATA AAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
   AAAA
IF 5240 DATA AAAAAAAAAAAAAAAAAAA♥♥♥A♥♥♥♥♥
   ♥AA♥◥♥♥AAAAAA♥♥♥eA♥A♥♥♥A♥♥♥♥♥A♥♥♥A♥♥♥A▜
   AAAA
SG 5250 DATA AAAA♥▟♥♥♥♥♥♥A♥♥♥♥♥♥♥A♥♥♥A♥♥♥♥♥
   ♥AA♥♥A♥A♥♥♥♥♥♥♥♥♥♥♥♥♥A♥♥♥A♥♥♥♥♥♥A♥A♥A♥"♥
   AAAA
SF 5260 DATA AAAAAAAA♥♥♥A♥♥♥♥♥♥♥A♥♥♥AAA♥AA
   AAAA♥A♥A♥A♥A♥♥♥♥♥A♥A♥♥♥Aee♥e♥A♥A♥A♥AAAA
   AAAA
FY 5270 DATA AAAA♥♥♥A♥♥♥A♥♥♥♥♥♥♥A♥♥♥♥♥♥♥♥♥
   ♥♥♥A♥A♥A♥A♥A♥♥◥♥A♥♥♥♥♥♥A♥♥♥♥♥♥A♥A♥A♥♥♥♥♥
   AAAA
FW 5280 DATA AAAA♥♥♥A♥♥♥A♥♥♥♥♥♥♥A♥♥♥AAA♥AA
   AA♥A♥A♥♥♥A♥A♥♥♥♥♥A♥A♥♥♥Ae♥♥♥♥A♥A♥AAAAA♥
   AAAA
EU 5290 DATA AAAA♥AAAAA♥AAAAA♥AA♥♥♥A♥♥♥♥♥
   ♥A♥AAAAAAAAAAAAAAA♥AAAAAAAAA♥A♥A♥♥♥♥♥♥♥▟
   AAAA
NY 5300 DATA AAAA♥♥♥♥♥♥♥♥A♥♥e♥♥♥A♥♥♥A♥♥♥♥♥
   ♥A♥♥A♥A♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥A♥AAAAAAAA
   AAAA
VY 5310 DATA AAAA♥♥♥♥♥e♥A♥♥♥♥♥♥♥A♥♥♥A♥e♥♥e
   ♥AA♥♥♥♥♥AAAA♥♥AAA♥AAAA♥AAAA♥A♥♥♥♥♥♥♥♥♥
   AAAA
EZ 5320 DATA AAAA♥♥e♥♥♥♥♥A♥♥♥♥♥♥♥AAAAAAAAA
   AAAAAAAAAAAAAA♥♥♥A♥A♥♥♥♥A♥♥A♥AAAAAAAAA♥
   AAAA
EG 5330 DATA AAAA♥♥♥♥♥♥♥♥AAAAA♥♥♥♥♥♥♥♥♥♥♥
   ♥♥♥♥♥♥♥♥♥♥♥♥A♥♥♥A♥A♥♥♥♥♥♥♥♥A♥A♥A♥A♥♥♥A♥
   AAAA
RJ 5340 DATA AAAA♥♥♥AAAAA♥♥♥♥♥♥♥AAAAAAAAA♥
   AAAAA♥AAAAAA♥A♥♥♥A♥AA♥♥♥A♥♥A♥A♥A♥A♥A♥A♥
   AAAA
PR 5350 DATA AAAA♥e♥♥e♥♥A♥♥e♥♥♥A♥♥♥♥♥♥♥♥A♥
   A♥♥♥A♥A♥♥♥A♥AA♥AA♥AA♥AAA♥AA♥A♥♥♥A♥A♥A♥
   AAAA
II 5360 DATA AAAA♥♥♥♥♥♥♥♥Ae♥♥♥e♥♥♥♥A♥A♥♥A♥
   A♥♥♥A♥A♥♥eA♥AA♥AA♥AA♥A♥♥♥♥♥A♥AA♥♥A♥A♥A♥
   AAAA
DX 5370 DATA AAAAe♥♥♥e♥♥A♥♥♥♥♥♥♥A♥AA♥AA♥A♥
   A♥♥♥A♥A♥♥♥A♥AA♥AA♥AA♥A♥♥♥♥A♥♥♥♥AA♥A♥A♥
   AAAA
YK 5380 DATA AAAA♥♥♥♥♥♥♥♥A♥e♥♥♥♥A♥♥♥♥♥♥♥♥A♥
   A♥♥♥A♥A♥♥♥A♥AA♥AA♥AA♥A♥♥♥♥A♥AA♥♥♥♥♥A♥A♥
   AAAA
LL 5390 DATA AAAA♥AAAAAAAAAAAAAA♥AA♥AA♥A♥
   A♥♥♥♥♥♥♥♥♥♥A♥A♥♥♥A♥A♥♥AAA♥AA♥A♥♥AAAA♥A♥
   AAAA
NM 5400 DATA AAAA♥♥♥♥♥♥♥♥♥♥A♥♥♥♥A♥♥A♥A♥♥A♥
   A♥♥♥A♥A♥♥♥A♥A♥♥♥A♥A♥AA♥♥♥♥A♥A♥♥♥♥♥♥♥♥A♥
   AAAA
JS 5410 DATA AAAA♥♥e♥e♥♥♥♥A♥♥♥♥A♥♥♥♥♥♥♥♥A♥
   A♥♥♥A♥A♥♥♥A♥A♥♥♥A♥A♥AA♥♥♥♥A♥AAAAAAAAA♥
   AAAA
FF 5420 DATA AAAA♥♥♥♥♥♥♥♥e♥A♥♥♥♥♥e♥♥AAA♥♥A♥
   A♥♥♥A♥A♥♥♥A♥♥♥e♥A♥A♥AA♥♥♥♥A♥♥♥♥♥♥♥♥♥♥♥♥♥
   AAAA
FY 5430 DATA AAAAAAAAAAAA♥♥A♥♥♥♥AAAAAAAAAA
   AAAAA"AAAAAAAAAAAAA♥AAAAAAAAAAAAAAAAAAA
   AAAA
TB 5440 DATA AAAA♥♥♥♥♥♥♥A♥eA♥♥♥♥♥A♥♥♥♥♥♥A♥♥♥
   ♥♥A♥♥♥♥♥♥A♥♥♥♥♥♥A♥♥♥A♥AA♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   AAAA
EG 5450 DATA AAAA♥♥e♥♥♥A♥♥A♥♥♥eA♥♥e◥♥A♥♥♥
   ♥♥A♥♥♥♥♥♥A♥♥♥♥♥♥A♥♥♥AAAA♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   AAAA
SR 5460 DATA AAAA♥♥♥♥♥♥♥A♥♥♥♥♥♥e♥A♥♥♥e♥A♥♥♥
   ♥♥♥♥♥e♥♥♥♥♥♥♥♥♥A♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   AAAA
```

continued on next page

```
RE 5470 DATA AAAA♥♥♥♥♥♥A♥♥A♥♥♥♥A♥♥♥♥♥A♥♥♥
   ♥♥A♥♥♥♥♥A♥e♥♥♥A♥♥♥AAAA♥♥♥♥e♥♥♥♥♥e♥♥♥♥♥
   AAAA
CK 5480 DATA AAAAAAAA♥AAAAAAA♥AA♥♥♥♥♥A♥♥♥
   ♥♥A♥♥♥♥♥A♥♥♥♥♥A♥♥♥A♥♥A♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   AAAA
GA 5490 DATA AAAA♥♥♥♥♥♥♥♥♥A♥♥♥♥AAA♥AAAAAA
   AAAAA♥AAAAAAAAAAAAA♥AAAAAAAAAAAAAAA♥AA
   AAAA
TI 5500 DATA AAAA♥♥♥♥e♥♥A♥A♥♥♥♥A♥♥♥♥♥A♥♥♥
   A♥♥♥♥♥A♥♥♥A♥♥♥A♥♥♥♥♥A♥♥♥♥A♥A♥♥♥A♥♥♥♥♥♥
   AAAA
LH 5510 DATA AAAAAA♥AA♥♥A♥A♥♥♥♥A♥♥♥♥♥A♥♥♥
   A♥♥♥♥♥Ae♥♥A♥♥♥A♥e♥♥♥A♥♥♥♥♥♥A♥A♥♥♥♥♥♥♥♥
   AAAA
TN 5520 DATA AAAA♥♥♥♥A♥♥A♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
   ♥♥♥♥♥♥A♥♥♥♥♥♥♥♥♥♥♥e♥♥♥♥♥♥A♥A♥A♥Ae♥♥e♥♥
   AAAA
UX 5530 DATA AAAA♥♥e♥♥♥♥A♥A♥♥♥♥A♥♥♥♥♥A♥♥♥
   A♥♥♥♥♥A♥♥♥A♥♥♥A♥e♥♥eA♥♥♥♥A♥A♥A♥♥♥♥♥♥♥♥
   AAAA
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TT 5570 DATA AAAA♥e♥♥♥A♥♥♥♥♥A♥♥♥AAA♥♥♥♥♥♥
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EM 5590 DATA AAAA♥♥♥e♥A♥♥♥e♥♥♥♥♥AAA♥♥♥♥♥♥
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   AAAA
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QO 5720 DATA 10,9,4,21,12,14,11,9,5,2,19,
   29,5,19,21,32,16,7,18,19,22,2,6,3,5,7,
   4,2,1,4,7,4,12,16,12,21,30,6,3
CA 5730 DATA 9,3,1,4,8,12,16,12,7,2,15,20
   ,22,25,28,34,19,8,4
```

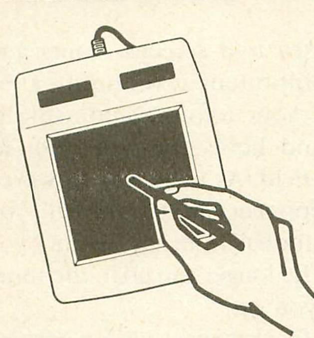
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# product reviews

## SMART 1030

E & B Computer Services
P.O. Box 292506
Columbus, OH 43229
$19.95, 16K disk

*Reviewed by*
*Brad & Kirsten Kershaw*

Are you disappointed that you bought the Atari 1030 modem, only to find that you did not have the same "bells and whistles" as other modem users?

Well, you were the smart one after all. That's because now for less than one tenth of the price of a Hayes Smartmodem, you can use **SMART 1030** from E & B to upgrade your 1030 for compatibility with the Hayes command set plus additional commands. This program by Brent Borghese also allows you to use other popular modem programs without the hard-to-find Atari 850 Interface Module.

With SMART 1030 you can autodial tone and pulse (on the 835 modem, pulse only) which allows you to dial a number from the computer keyboard. If the line is busy, an auto redial command requires just two keystrokes.

One nice feature is the onscreen help command. If you forget the commands or just get lost within the program, type HELP to bring up a small window of the most-used commands.

If you enjoy talking to other bulletin boards, this program makes it a breeze. And with your Atari you can use ATASCII to get the added feature of graphics. An included bulletin board database stores up to 18 BBS phone numbers, which you can access by two keystrokes. If you use alternative long distance phone services, you can also store your code numbers for easy access.

Since SMART 1030 allows so many features not previously available to Atari 1030 users, it is too bad that the documentation only lists a few of the many features available on Smartmodems. Using my own Smartmodem manual, I found that many undocumented options were actually available in SMART 1030.

The documentation also is not geared for telecommunications beginners and uses many highly technical terms without explanation. If you are a modem novice you could really use the guidance of someone familiar with Smartmodem protocols.

But despite any quibbles about the documentation, the SMART 1030 itself is a very useful utility that could be a major asset to your telecommunications library.

## BALLBLAZER, RESCUE ON FRACTALUS

Epyx Inc.
1043 Kiel Court
Sunnyvale, CA 94089
(408) 745-0700
$40 each, 48K disk

*Reviewed by Michael Ciraolo*

Rumors of their arrival swept the country, but nothing official came out of the quiet hills north of San Francisco. Until now.

After a year of anticipation, buggy bootlegs and legal battles, the Lucasfilm games **Ballblazer** and **Rescue on Fractalus** are available from Epyx. **Antic** first described these games in an August, 1984 cover story.

Both games offer exactly what you'd expect from Lucasfilm, Ltd.—the best. From the exquisite animation while the program loads, to the music and the actual playing, these games help define the state of the art.

Ballblazer puts you at the controls of a Rotofoil in the year 3097. Strapped into this hovercraft-like vehicle, you will make turns at 50 meters per second. The point is simple: you have to drive a small, dense Plasmorb through moving goalbeams at one end of the playing grid, while your opponent tries to do the same.

You see two screens, yours and your opponent's (computer or friend). Your rotofoil automatically grabs and holds the ball with its energy field. As in soccer, however, your opponent can steal the ball. You can fire the ball from any distance you want. The longer the goal, the more points you get.

Lucasfilm has succeeded in creating a feeling of new physics. You're on a different planet, feeling different forces, and playing a game faster than most pedestrian arcade thrillers.

Nor are you dumped in this game alone. The accompanying documentation is as rich as the movie "Star Wars," and contains instructions, tips and hints on offense and defense from the intergalactic experts.

Apropos of "Star Wars" fighter-pilot thrills, Rescue on Fractalus also puts you in the cockpit seat. This time, you're piloting a modified Valkyrie Fighter, capable of cruising at Mach 7.2.

You'll be dropped from an orbiting spaceship onto the planet Fractalus to fight enemy saucers and gun emplacements while you rescue stranded pilots. You'll need to navigate the craggy surface of a planet which rotates so fast that the days are nine minutes long.

And you are really in the pilot's seat, for one of the most enjoyable "flight simulator" experiences around. On the heads-up display you'll find cross hairs, altitude, energy, wing-clearance, horizon, and thrust level indicators, as well as scanners and other appropriate indicator lights.

Through the cockpit's window, you can see the mountains, the product of unique fractal geometry programming—you will never fly over the same scrolling landscape twice.

continued on page 75

**PRODUCT REVIEWS**
continued from page 72

Each view is original and unique.

Land within range of a downed pilot, and you will see his ship on your scopes. You can watch as the pilot runs toward you. You'll hear his footsteps, then the knocking on your airlock. Open up, let him in, and you're off, trying to complete all 16 levels.

When Epyx originally released these two games, the disks would only work on Atari 810 and 1050 drives. That problem has been corrected, and Antic was assured that the company will replace unworking disks.

Epyx officials also said two new Lucasfilm games would be announced at the Summer Consumer Eletronics Show in June.

## ADVENTURE MASTER

CBS Software
1 Fawcett Place
Greenwich, CT 06836
(800) CBS-ASK4
(203) 622-2525
$44.95, 48K disk

*Reviewed by Brad Kershaw*

What could be more challenging than playing computer adventure games? Creating them! And with **Adventure Master** from CBS you can do just that.

Until now you had to be a full-fledged programmer to build a professional-quality adventure. With Adventure Master all the programming is built in. You just fill in the creative parts by following a series of menu prompts.

Adventure Master consists of two disks and a short, clearly-written manual. The first disk contains the adventure writing tool and a completed adventure called "Clever Catacombs" to demonstrate the finished product in action.

The second disk has two partially completed games which you can scrutinize and then write a conclusion. This is especially helpful in understanding the individual parts of the program, and how they relate to each other, before you start an adventure of your own from scratch.

The manual suggests that you start by mapping your fantasy world on paper. The booklet comes with a short tutorial on how to make a map of all rooms, passageways and objects which will be encountered.

First stop, Main Menu: From here you lay out the passageways. These are the directions the adventure player can take between "rooms" (a room is any specified area indoors or outdoors). Obstacles can be placed using the passageway function by specifying an object to be taken or a special deed to be done before proceeding to the next room.

Next stop, Descriptions: This is the place where you write the text describing what the player sees when entering the room. Two thirds of the screen is available to give a word picture of the area and objects in view.

Rest stop, Objects: The real challenge of any adventure game is finding the objects and knowing what to do with them. Adventure Master allows one portable object to be placed in a room for the player to pick up, use, or drop later in the game.

Adding to the difficulty, an object may be hidden from view and only obtainable by doing a specific act, such as "Open box" whereupon the object "candles" is discovered. Later in the game, the candle may be lit, and used to go through a dark passageway.

Pit stop, Graphics: To put the finishing touches on your adventure, you can now go to the graphics editor. This is a built-in joystick painting program. One restriction is that you are only allowed three colors per picture, but with a little patient exprimentation you can do some elaborate drawings. Another restriction is that if you have a lot of rooms, you can only fit about 10 graphic pictures in the entire adventure.

Final stop, Words: Here is where you set up the answers that the computer will give to key words that you specify. These responses can be varied from room to room.

To give your game more spice, there is a "Magic Word" function. By using a specified word, the player is whisked away to another room, either to be rescued from danger or lost forever. The player must type in words exactly as defined by the writer.

Once the adventure has been completed, other finishing touches may be added. One option is "score" where you assign point values for finding a room or object. Another option is an introducton page, which sets the mood for your adventure.

After you are satisfied with the finished adventure, you can put your game on disk in autoload format. To guarantee that no one else looks inside your program for clues, password protection is provided.

Adventure Master opens up the world of adventure game design at an impressively high level. What you can create with this program is limited only by your imagination.

## MAXWELL MANOR

Avalon Hill
4517 Harford Road
Baltimore, MD 21214
(301) 254-9200
$25, 48K disk

*Reviewed by Scott Lewis*

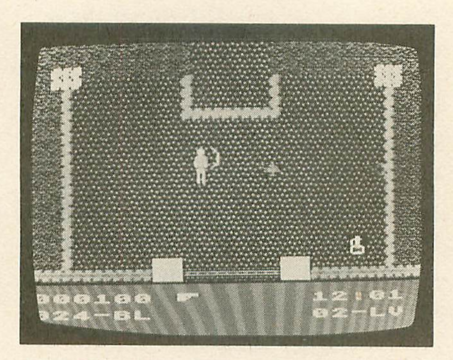
Mood is everything in **Maxwell Manor**. From the ghostly opening music to the tombstones and skulls that mark your death, you will be captured by the atmosphere of this

continued on next page

deserted, deadly place. Messages flash across the screen, warning "DEATH AWAITS," "DANGER," and "SAVAGE!" But will you heed them? Of course not!

You are Professor Arabesque, assigned by the Psychical Society to find the Skull of Doom, which controls the manor, and to destroy it. Simple enough, you might think. But there are terrors lying in wait! Glurks, Sprigles and Wigglers are ready for you at every turn, eager to steal one of your precious lives and send you hurtling into Limbo. In the basement, the Vampire Spider lurks!

You can pick up objects as you explore the mansion and you can carry four objects at a time. But which object will be effective against any given monster? **Antic** won't tell you. The



Hint Booklet might—if you need to stoop so low. After you've died a few times and find yourself pushing up daisies instead of the joystick, you'll begin to discover the secrets of defending yourself in this macabre manor—if you're lucky!

The mansion has more than 50 screens and the graphics are very good. Several of the rooms feature bright yellows and greens—colors that other games seem to avoid for some reason (perhaps conversion problems). You can easily select from 10 skill levels and over 100 different maze variations.

The only problem with this game is in its "strategy" aspect. There is a constant stimulus to action: if you stand in one place for too long an arrow will soon appear out of nowhere to threaten you. The instruction sheet says a Pause command is available, but never gets around to explaining what that command is.

Maxwell Manor does not really present a puzzle you can solve by logic. It is a vast, intricate maze game with much mood and some advanced touches, but ultimately it is not that different from many other arcade games.

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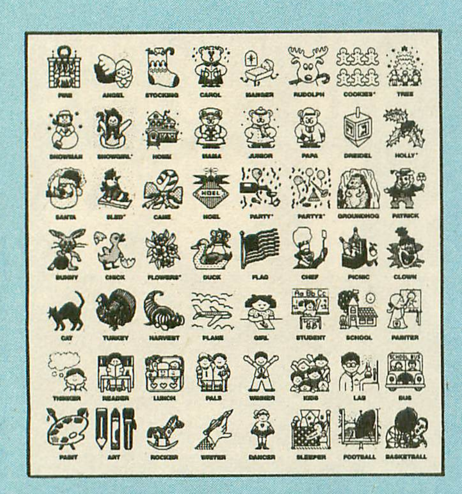
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## kyan PASCAL

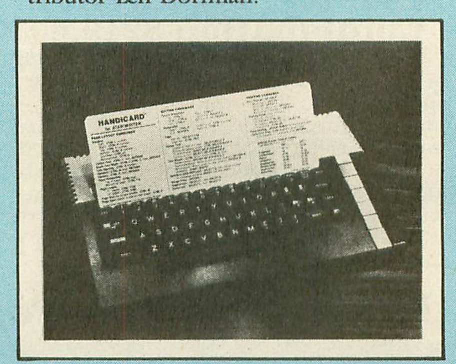
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Kidstuff Software, P.O. Box 11528, Fort Wayne, IN 46859, (219) 456-1401, $24.95, 48K disk. Easy-to-use home database.

### MATH MAGIC

Texas Software, 10165 Calder, Beaumont, TX 77706, (409) 866-9765, $29.95, 48K disk. Educational mathematics game.

### CODE QUEST

Sunburst Communications, Inc., 39 Washington Avenue, Pleasantville, NY 10570, (800) 431-1934, $55, 48K disk. Educational decoding and problem solving game.

### ATARI TRIVIA DATA BASE

Howard W. Sams & Co., Inc., 4300 W. 62nd Street, Indianapolis, IN 46268, (317) 298-5400, $19.95 (book and disk), $8.95 (book). Teaches fundamentals of database management. Also includes trivia game.

### EASY MODEM

ANSCO, 1243 W. 134th Street, Gardena, CA 90247, (213) 532-7780, $299. Hayes compatible 1200/300 baud modem.

### POPCOM X150

Prentice Corporation, 266 Caspian Drive, P.O. Box 3544, Sunnyvale, CA 94088, (408) 734-9810, $499. Bell 212A and Hayes compatible 1200/300 baud modem.

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